MAR 25 1929

PAPER TRADE JOURNAL

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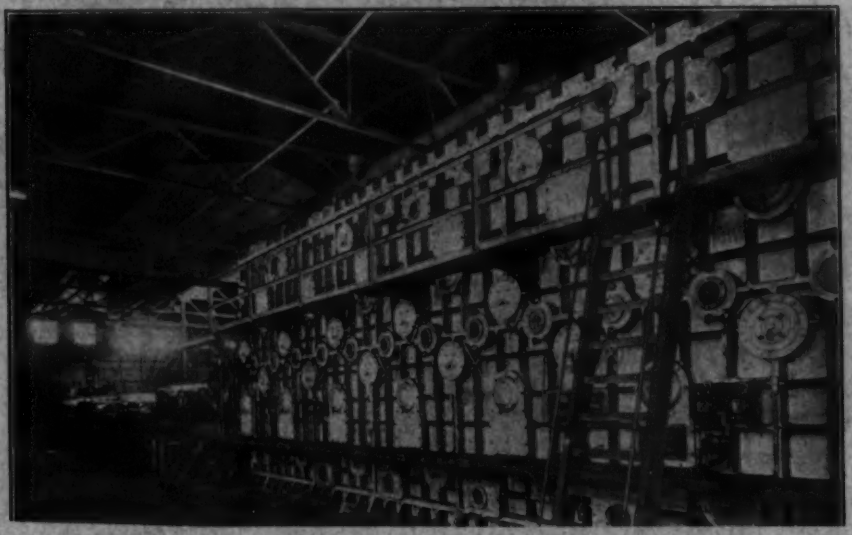
THE MINTON VACUUM DRYER

MARKS AN ADVANCE IN THE PAPER MAKING INDUSTRY SECOND ONLY TO THE ADVENT OF THE FOURDRINIER PAPER MACHINE



It is more than a coincidence that MINTON VACUUM DRYERS have been purchased by paper makers who are leaders in their industry in their own particular field covering Newsprint paper, Tissue, Pulp, and certain materials difficult to properly dry.

One—Special VACUUM DRYER 144" wide.
One—152" VACUUM DRYER for Newsprint paper.
One—144" VACUUM DRYER for sulphate pulp—100 tons per day.
Two—234" VACUUM DRYERS for Newsprint paper.
One—VACUUM DRYER for the highest speed Tissue machine.
One—Special VACUUM DRYER for a material equivalent to a 25 point board.

MINTON VACUUM DRYER CORP.
SMITH BUILDING
GREENWICH, CONN., U. S. A.

MINTON VACUUM DRYER CO., (Canada) LTD.
DRUMMOND BUILDING
MONTREAL, P. Q., CANADA

U-BAR

Built for the Job

An Open Letter to Pulp and Paper Men

IT IS thirteen years since you read the first announcement of the American Barking Drum. From time to time since then you have read of improvements as they were made—one of which was the U-Bar construction which was originated by us. Now pause for a moment. Consider these reports:

One well known company started barking with a smooth-interior drum. They say, "When we first started barking the wood slipped back too much and we put in baffles to carry it up." Such slipping increases as the diameter of the drum increases. Now they use U-Bar Drums exclusively.

U-Bar Drums are rivetted. Ever since the first one was built, our engineering department has studied and tested all possible joining methods. As far back as 1920, for instance, we tried welding. It was not satisfactory. So until a stronger and more perfect method is discovered, the rugged dependable *multiple-rivet* joint will continue as a feature of the U-Bar Drum—the drum built to withstand the constant hammering and pounding of the daily and yearly barking grind. Building 300 drums that are giving good service day in and day out has convinced us that the rivetted *joint is the permanent* joint.

U-Bar Chain-Suspended Drums in the Volga River Paper Mills of Kourza, in the Nizhni Novgorod District, Russia—far away, where rugged dependability is absolutely essential.

And Speed Is Important

Then consider speed. Important because it increases or reduces capacity. The U-Bar Drum (10 ft. diam.) runs from 7½ to 10 R.P.M. One mill reports a U-Bar Drum running smoothly at 12 R.P.M. That's PRODUCTION.

So in addition to the ordinary guarantee of materials and workmanship, we guarantee for two years—3000 operating hours per year—running at 7½ R.P.M. Think of it!

Speed determines your capacity—be sure it's included in your guarantee.

In United States, Canada and Newfoundland there are *twice as many* of our U-Bar Drums in operation as *all other drums combined*. And our sales for the past four years average 20 drums per year, many of them reorders from mills that are increasing their capacity. And what better testimonial could be found for any piece of machinery?

The E-Z Opening Bag Company writes, Feb. 14, 1928, "Please send us 20 feet of chain. This is the first and only repair on our drum which has been in operation since early 1924. We are more than pleased." Four years of uninterrupted service! *They bark dry.* And another Canadian Mill matches this report: "A $50 maintenance cost in 4 years with an average capacity of 16½ cords per hour." That's something to think about.

Just ask the mills that use them. That, after all, is the soundest source of information.

SOME OF THE MILLS USING OUR DRUMS EXCLUSIVELY

Abitibi Power & Paper Co., Ltd., Iroquois Falls, Ont.	8 Drums
Abitibi Power & Paper Co., Ltd., Espanola, Ont.	5 Drums
Abitibi Power & Paper Co., Ltd., Sturgeon Falls, Ont.	4 Drums
Abitibi Power & Paper Co., Ltd., Sault Ste. Marie, Ont.	9 Drums
Canada Power & Paper Corp., Shawinigan Falls, Que.	4 Drums
Donnacona Paper Co., Ltd., Donnacona, Que.	4 Drums
Fort Frances Pulp & Paper Co., Ltd., Fort Frances, Ont.	5 Drums
Hawk Lake Lumber Co., Ltd., Cochrane, Ont.	3 Drums
Lake St. John Power & Paper Co., Ltd., Dolbeau, Que.	4 Drums
Ontario Paper Co., Ltd., Thorold, Ont.	6 Drums
Powell River Paper Co., Ltd., Powell River, B. C.	6 Drums
Thunder Bay Paper Co., Ltd., Port Arthur, Ont.	4 Drums
Wayagamack Pulp & Paper Co., Ltd., Three Rivers, Que.	4 Drums
Brown Company, Burgess Mill, Berlin, N. H.	6 Drums
Consolidated Water Power & Paper Co., Wis. Rapids, Wis.	3 Drums
Consolidated Water Power & Paper Co., Appleton, Wis.	3 Drums
Detroit Sulphite Pulp & Paper Co., Detroit, Mich.	3 Drums
International Paper Co., Ogdensburg, N. Y.	3 Drums
Munising Paper Co., Munising, Mich.	3 Drums
Nekoosa-Edwards Paper Co., Port Edwards, Wis.	4 Drums
Nekoosa-Edwards Paper Co., Nekoosa, Wis.	3 Drums
Southern International Paper Co., Mobile, Ala.	2 Drums
St. Regis Paper Co., Waddington, N. Y.	3 Drums
West Virginia Pulp & Paper Co., New York, N. Y.	8 Drums
International Power & Paper Co. of Newfoundland, Ltd., Corner Brook, Newfoundland	7 Drums
Volga River Paper Mills, Russia	4 Drums

DEPENDABILITY • ECONOMY • STRENGTH • SPEED • CAPACITY

Fibre Making Processes, Inc., Chicago, U. S. A.

CANADIAN BARKING DRUM CO., LTD., TORONTO

Entered as second class matter August 12, 1925, at the Post Office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. ESTABLISHED 1872 FIFTY-SEVENTH YEAR Published every Thursday by the Lockwood Trade Journal Co., at 24 N. Crystal St., E. Stroudsburg, Pa. EXECUTIVE AND EDITORIAL OFFICES: 10 East 39th Street, NEW YORK CITY. CHICAGO. 133 West Madison Street, Chicago. Il

Cambridge Instruments

Many paper mills are speeding up production by eliminating cold and waterlogged rolls through constant use of the

CAMBRIDGE SURFACE PYROMETER

The instrument is direct reading and by application to the surface of the moving rolls, instantly detects those below the proper temperature.

It is a rugged, factory appliance and can be used by any operator.

CAMBRIDGE MOISTURE INDICATOR AND RECORDER

Shows at a glance the relative humidity or moisture content of any paper stock, finished or unfinished.

WE are also makers of

Automatic Combustion Control, C O Indicators and Recorders, Hydrogen-Ion Apparatus, Resistance and Thermo-electric Pyrometers.

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3512 Grand Central Terminal, New York
Pioneer Manufacturers of Precision Instruments

PAPER TRADE JOURNAL

ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-SEVENTH YEAR

Published Every Thursday by the

LOCKWOOD TRADE JOURNAL CO., Inc.

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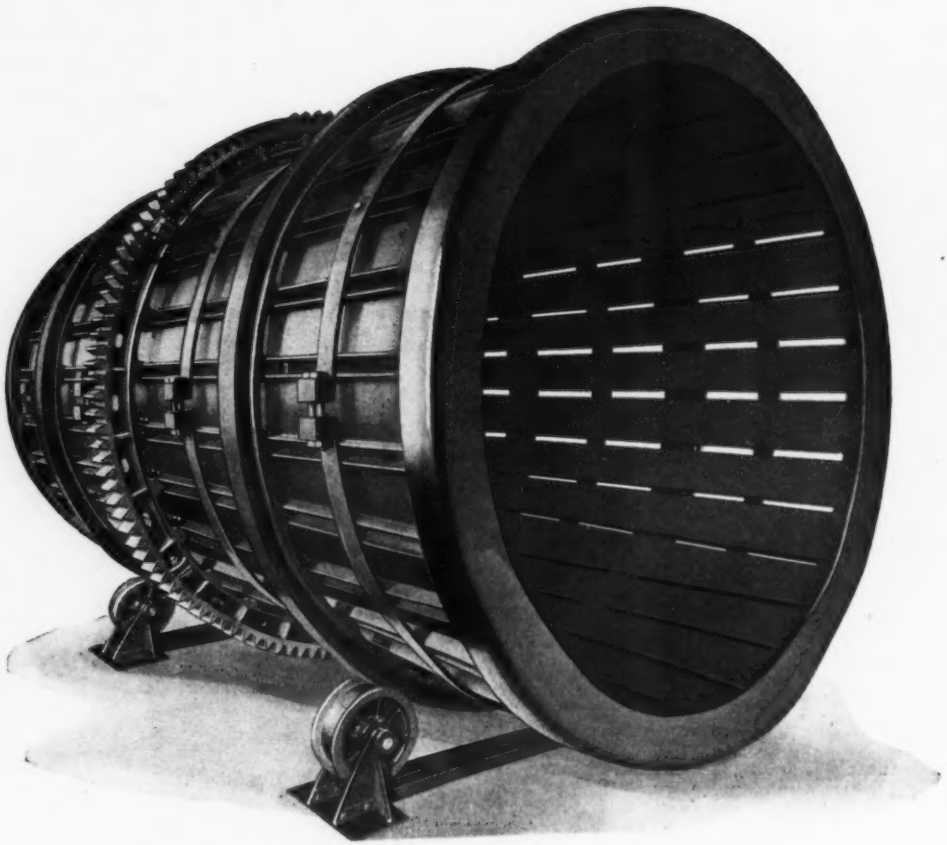
THE BRANCH BARKING DRUM

(Patented)



(Cut shows drum mounted on shop trunions for assembling. Regular trunions are double roller cradle type)

A barking drum designed to keep down upkeep.

Unique construction that gives greatest strength with least weight.

No rivets used in this drum. Absolutely smooth interior, reducing brooming to a minimum.

A perfect cylinder because all parts are accurately machined.

Manufactured by

D. J. MURRAY MANUFACTURING COMPANY

WAUSAU, WIS.

(Manufactured in Canada by Waterous Limited)
Brantford, Ontario, Canada

ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

PAPER

Vol. LXXXVIII, No. 12 — Thursday, March 21, 1929

Paper Production Increases During January

Total For The Month From Identical Mills Reporting To The American Paper & Pulp Association Was 600,454 Tons As Compared With 523,018 Tons For December—This Increase Was Largely Due To The Increased Activity of the Paper Board Mills During January—Wood Pulp also Shows Gain

The total paper production in January, according to identical mill reports to the American Paper and Pulp Association, was 600,454 tons as compared with 523,018 tons in December and 575,912 tons in November, 1928. The January, 1929, production total was 600,454 tons as against 533,761 tons in January, 1928, an increase of 12 per cent.

This jump in total percentage gain over January, 1928, was largely a result of the increased activity in the paperboard industry which increased 22 per cent in production over January, 1928, according to identical mill reports. All grades, excepting hanging and felts and building, registered increases in monthly production over last year. Book showed an increase of 10 per cent over January, 1928, production while wrapping increased 6 per cent, tissue 9 per cent, bag 18 per cent, writing 8 per cent and newsprint 4 per cent. The following grades registered production losses in January, 1929, as against January, 1928: hanging 5 per cent, felts and building 14 per cent.

January shipments of paper showed an increase over the corresponding month last year with the exception of hanging, and felts and building. Stocks on hand at the end of January as compared with December, 1928, showed decreases in book, tissue, and hanging and a slight increase (less than 1 per cent) in newsprint and wrapping.

Identical pulp mill reports for January showed that the total production of all grades of pulp was 10 per cent greater than January, 1928. Mill consumption was 8 per cent greater and shipments to the outside market almost 9 per cent greater than during the corresponding month last year. January, 1929, production totaled 231,031 tons against 206,149 tons in December and 220,979 tons in November.

Total stocks on hand at the identical mills reporting, registered a decrease of almost 13 per cent. Soda and mitscherlich sulphite registered fairly large per cent increases while the other grades showed decreases.

REPORT OF WOOD PULP OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF JANUARY, 1929

Grade	Production tons	Used during month tons	Shipped during month tons	Stocks on hand end of month tons
Ground wood	97,736	90,751	2,894	85,734
Sulphite news grade	41,176	37,622	3,394	8,641
Sulphite bleached	27,058	24,578	2,637	2,602
Sulphite easy bleaching	3,471	3,000	374	667
Sulphite Mitscherlich	6,713	5,522	1,353	1,323
Sulphate pulp	30,740	25,073	5,372	4,800
Soda pulp	24,116	15,478	8,567	5,674
Pulp—Other grades	21	.....	36	8
Total—All grades	231,031	202,024	24,627	109,449

REPORT OF PAPER OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF JANUARY, 1929

Grade	Production tons	Shipments tons	Stocks on hand end of month tons
News print	123,822	120,263	38,003
Book	97,699	98,312	51,710
Paper board	219,999	218,956	53,033
Wrapping	57,914	57,414	55,142
Bag	15,821	14,752	7,699
Writing	32,016	33,997	51,956
Tissue	12,571	12,801	8,940
Hanging	6,004	6,271	2,603
Felts and building	5,745	5,376	3,170
Other grades	28,863	28,658	18,196
Total—All grades	600,454	596,800	280,452

Rapid Progress on Lynchburg Paper Mill

LYNCHBURG, Va., March 6, 1929.—With between 400 and 500 workmen employed on the job, construction of the paper mill being erected in connection with the John H. Heald Company plant here is going forward rapidly and expectations are that it will be ready to open for operations by the latter part of May when about 125 employees will be given work. The mill is being built as result of merger of the Heald Company and the Mead Paper Company of Dayton, Ohio.

The big paper machines already are being put in place and boiler equipment is on the ground and will be installed next. Electrical installation work will be started next week. The structure as a whole is reported as being sixty per cent completed.

When in operation the majority of those employed in the mill will be men, it is said, thus making this plant of the type recommended by the experts who recently made an industrial survey of Lynchburg.

Federal Board Co. May Build Mill

PORTLAND, Ore., March 18, 1929.—The Federal Paper and Board Company, of this city, has asked the Port of Portland for a 33 foot vacation of the end of Harrison street below Water street in order that a mill may be established there. The request was filed with the port commission.

"If we obtain this ground we will start construction within two months on the building," said I. Goldberg, secretary of the company.

"We would manufacture paper board there at the rate of about 30 tons a day, with 100 men employed," he said. Max Goldberg, brother of the secretary, is president of the Federal Paper and Board company, the two having been in the paper business together for a number of years.

Kimberly-Clark Corp's Net Sales Increase

Despite Price Reductions Sales Totalled $21,533,263 In 1928, Compared With $17,472,623 In Preceding Year—Net Income Was $2,154,663, Compared With $2,917,367 In 1927—Production of Paper and Pulp During Year Was 161,184 Tons

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., March 18, 1929.—Although sales were increased during the year 1928, the Kimberly-Clark Corporation, of Neenah, Wis., showed a decline in net earnings as compared to the year 1927, according to reports issued to the stockholders by F. J. Sensenbrenner, president.

Consolidated net income, adjusted to reflect the present annual bond interest and preferred stock dividend requirements, was $2,154,663, the equivalent after preferred dividends of $4.39 a share on 490,000 shares of common stock. In the preceding year the net earnings were $2,917,367, or $4.73 a share on the same number of shares. Net sales of the corporation in 1928 totaled $21,533,263, as against $17,472,623 in the preceding year.

In commenting on the report, Mr. Sensenbrenner says: "Production of paper and pulp for sale during the year totaled 161,184 tons and despite reductions in prices, net sales amounted to $2,497,969 more than in 1927. Although the company generally is known as a manufacturer of book paper for use in printing rotogravure sections, magazines, mail order house catalogs and such papers, which constitute the major part of its production, it has been the policy of the company for some years to diversify its products so that today it manufactures a great variety of papers and paper products. Its leading lines of specialties are wall paper, school practice papers, high grade deep color cover papers, absorbent wadding used exclusively in surgical work and in the manufacture of sanitary pads, facial tissue and other specialties. Current conditions and the outlook for a demand for the company's products for 1929 are satisfactory."

Total current assets of the company are $8,797,471 and current liabilities amount to $3,838,869 as of January 1, 1929. The total assets of the company are $45,758,129.

Superintendent's Convention Plans

New England States will have a special train of twelve Pullman coaches to convey members of the American Pulp and Paper Mill Superintendents' Association from that section to the tenth anniversary convention June 6, 7 and 8 at Wausau, Wis., according to announcement of R. H. Kelly, of the Marathon Paper Mills Company, general chairman of arrangements. The train will be made up at Boston.

Arrangements also have been made for a golf tournament on the beautiful course at the Wausau Country Club. There will be four prizes. One each for low net and low gross will be given to visitors, and one each for low net and low gross to members. This will assure members of the association a prize if they compete. These plans are in the hands of Vassie Atherton, who may be reached by addressing mail to him in care of Hotel Wausau, where the headquarters are to be located.

Neenah Mill Shut Down

The Neenah mill of the Kimberly-Clark Corporation is in the midst of a shut down for two or possibly three weeks. Extensive repairs are being made on the mill by C. R. Meyer & Sons Company, contractors. A suspension for only a few days was contemplated, but the repairs will take longer than expected.

Freight Rate Fight Lost

Wisconsin paper mills lost out in a recent move to readjust eastern freight rates so that mills in the seaboard area would not be at a disadvantage in the Chicago market. A recommendation of William H. Smith, examiner for the Interstate Commerce Commission, requested a decree from the commission that existing rates from Watertown, N. Y., are unfair. Action was brought by the Stregis Paper Company, of Watertown, in a two year rate fight on the ground that existing rates to the rich Chicago district favor its competitors in Wisconsin. The American Publishers Association assisted the Watertown company in its efforts.

New Safety Plan Adopted

A new safety plan is being used in the Kimberly-Clark Corporation's mill at Niagara Falls, N. Y. A foreman is selected to act as safety foreman each month. He is responsible for the safety activities during that time and gives the needed punch to see that all safety customs are enforced. He writes down in a notebook each day the things he has done for the advancement of safety. He records the safety guards he wishes to install and makes other memorandums that are of help to a perfect record. He keeps contact with all other foremen to see that they enforce safety and teach the workmen safety in all their operations. The plan centralizes responsibility and supervision, and helps to make all the foremen more safety conscious.

Industrial Safety School Opened

A city wide industrial safety school has been opened at Marinette, Wis., with safety officials of the Marinette and Menominee Paper Company and other paper mills assisting in the programs. Numbers of employees from each mill are attending. The first session had 230 persons present, including women as well as men. The speaker was L. C. Sagemueller, of the Meteor Oil Company, Milwaukee, Wis. His subject was "Safety and Your Responsibility."

Foremanship classes conducted by the Fox River Paper Company and the Appleton Coated Paper Company, Appleton, Wis., closed with dinners last week. Benefits of the course were summarized, and officials of the company expressed their appreciation of the interest shown by their employees.

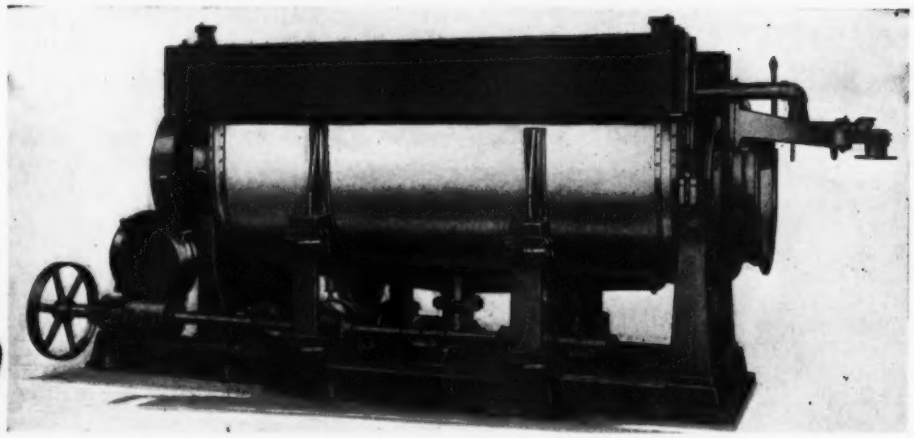
News of the Industry

An accident last week to Alfred Lalonde, a yard worker, marred a record of 231 consecutive days without a lost time accident at the Marinette and Menominee Paper Company, Marinette, Wis. This was the best record ever made by the Park mill of this company. Falling logs caused a broken bone in Lalonde's foot.

The Riverside Fibre and Paper Company, through the Employers Mutual Liability Insurance Company, will be obliged to pay damages of $5,027.50 to the widow of Edward Gastrock, an employee, according to a verdict of the Wisconsin Industrial Commission. Gastrock died after his bowels had been ruptured by a compressed air hose in the hands of a fellow employee. The commission contends that employees should not handle such equipment without knowing the hazards, and that the nozzle of the hose should be equipped with a device to keep it at a safe distance from a man's body.

Mills using water power throughout the Fox River Valley have had little benefit from this power source for the last week owing to the fact that all sluice gates are wide open to prevent floods. It is impossible to maintain a sufficient head of water while this is going on. These precautions have been taken to prevent flooding of cities in the supper valley. The sluicing will continue until Lake Winnebago, which serves as the storage reservoir, is lowered to a point where it will take care of the spring excess.

Henry Josephs, superintendent of the Daniels Manufacturing Company, a paper specialty plant at Rhinelander, Wis., has resigned. He will become resident manager of the Marathon Paper Mills Company's mill at Ashland, Wis. He had held his Rhinelander position for thirteen years.



The BIRD SCREEN

commands first consideration no matter what your stock or what your requirements.

In more than two-thirds of America's paper mills it is daily proving itself *the* one best paper screen.

You need the Bird Screen.

BIRD MACHINE COMPANY
South Walpole
Massachusetts

BIRD MACHINERY

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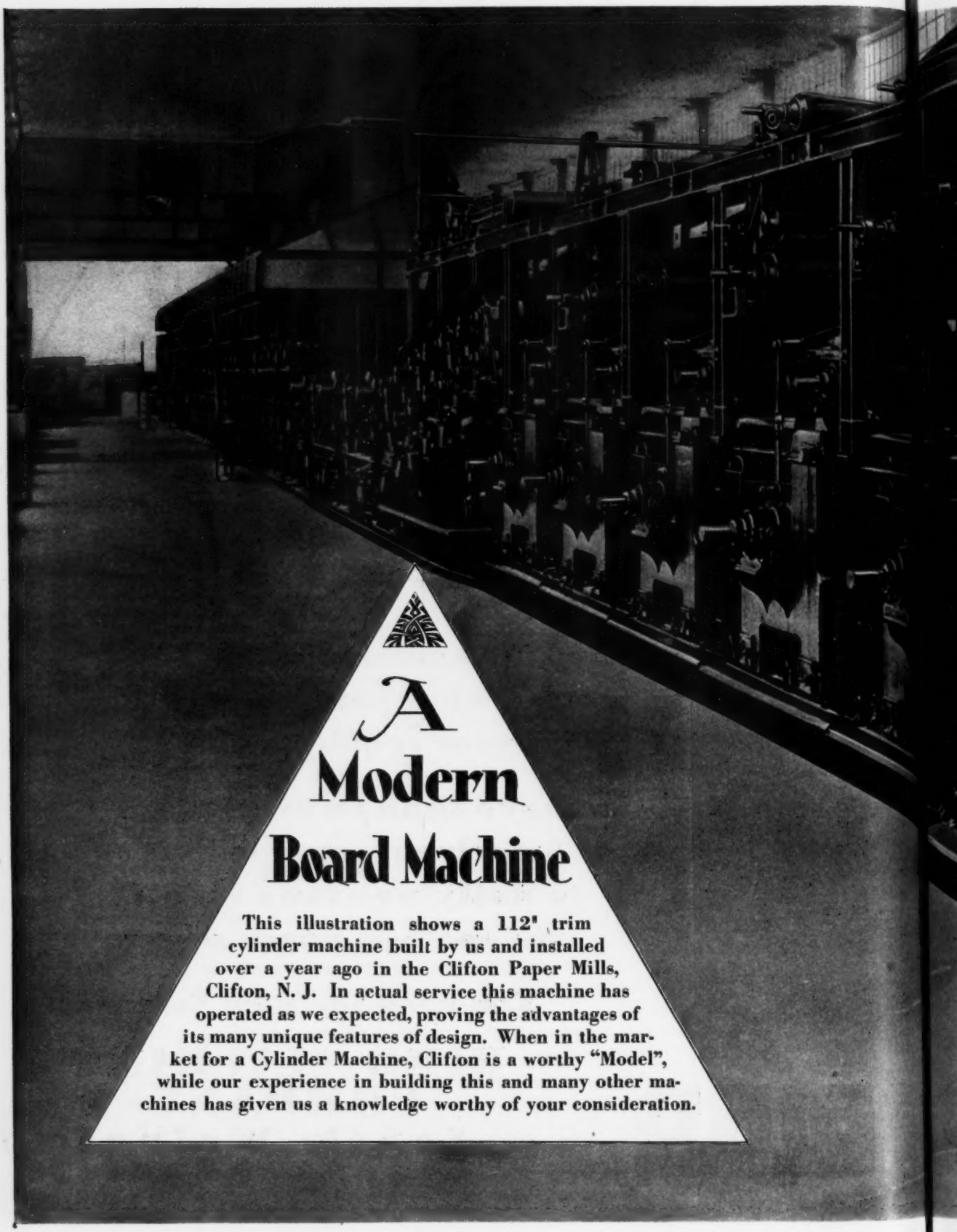
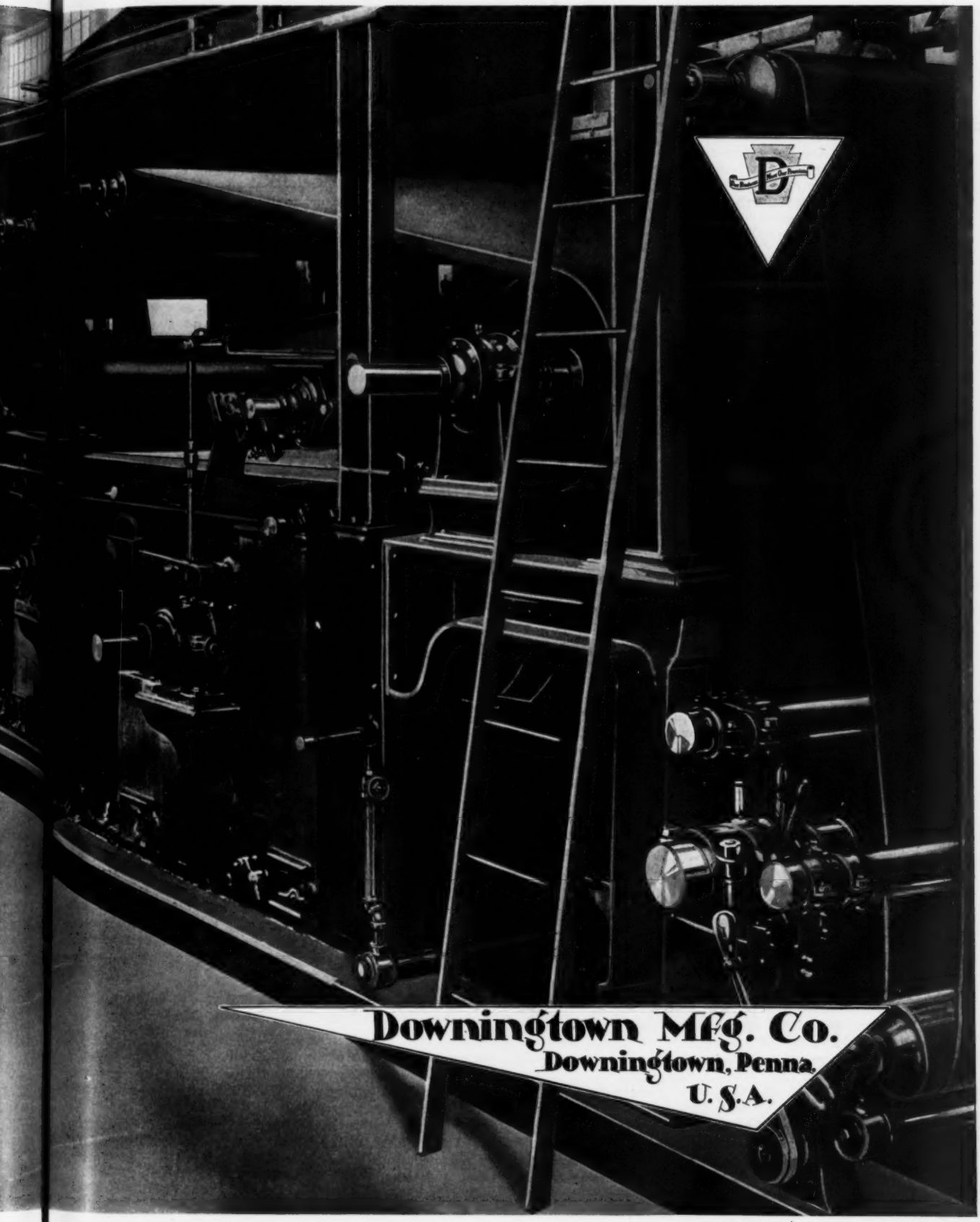


A Modern Board Machine

This illustration shows a 112' trim cylinder machine built by us and installed over a year ago in the Clifton Paper Mills, Clifton, N. J. In actual service this machine has operated as we expected, proving the advantages of its many unique features of design. When in the market for a Cylinder Machine, Clifton is a worthy "Model", while our experience in building this and many other machines has given us a knowledge worthy of your consideration.


Downingtown Mfg. Co.
Downingtown, Penna.
U. S. A.

Paper Business Falls Off Slightly in Chicago

Although Demand for Various Standard Grades Was Less Spirited, Prices Were Generally Maintained At Recently Quoted Levels—News Print Situation Shows Signs of Improvement—Fine Paper Market In Fairly Sound Position For Season

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., March 18, 1929.—The volume of business transacted in Chicago paper markets fell off slightly during the past week according to reports from various authoritative sources. Demand was not quite so spirited and as a result merchants were hoping for an increase in volume soon. Prices in practically all cases remain steady.

The news print situation seems to have practically righted itself as far as local opinions are concerned. The prices of news print being fairly well stabilized, a normal business is going on with mills running slightly above 80 per cent according to reliable sources. The book paper market is steady with demand only fair. Fine papers are entering the spring market in fairly good shape while the wrapping market is just on the verge of its second busy season within the past four months .

Salesmen's Dinner Highly Successful

The Annual Salesmen's Dinner given by the Chicago Paper Association for salesmen and executives of member firms and a few guests was the largest from point of attendance and interest yet held. The large group over 300 gathered in the Red Lacquer Room of the Palmer House on March 12 was full of pep, cooperation and a desire to improve the general situation in the Chicago paper market.

Following an excellent dinner President Leo Altholz, of the Inlander-Steindler Paper Company, started the entire proceedings off in his customary forceful fashion reviewing the purpose of the Chicago Paper Association, the progress it has made and its many plans for the future. O. Rosenthal, an architect and builder of note, had an important part on the program and his address on "Building in Business," was one of the high spots of the evening's entertainment. Mr. Rosenthal stressed the necessity of cooperation in any business field pointing out the fact that improving the ethics and principles of one's competitor was equally beneficial to the competitor and the helpful party. Better methods of competition, fair and helpful, were urged by the speaker. J. L. Fox, legal advisor of the association, also interested the salesmen and executives present by pointing out and defining a number of legal points that paper salesmen should fully understand to get the very best results in their work.

Some dancing and singing stunts furnished the lighter entertainment of the evening including a more or less impromptu boxing bout between two of the fair sex, all of which was an additional stimulant to the already peppy assemblage.

The annual dinners of the Chicago Paper Association are growing in size, scope and purpose each year and are proving exceedingly helpful in binding, not only member executives but also salesmen, more firmly into unified organization with some very helpful plans to work out.

A. S. Allen to Discuss Process Colors

The stage is all set for the biggest Monday noon meeting of the Salesmen's Association of the Paper Industry, Chicago Division, held thus far. Harold Knott, recently reelected president of the local group, announces that a great deal of interest has been created over the appearance of Arthur S. Allen, noted color engineer, at the Hamilton Club, Monday, March 25.

Approximately 200 salesmen, customers, executives, non-member salesmen and all those to whom such an instructive and educational talk will interest are expected to attend this meeting at which time Mr. Allen will review the work and plans of the committee on the Standardization of Process Colors of which he is the chairman.

Every grade of paper on which any kind of printing is ever done will be affected by the work of Mr. Allen's committee and the executive committee of the local division of the Salesmen's Association feels that every paper salesman should know about Standard Process Colors in self defense, if for no other reason. As Mr. Knott has explained, the paper sold by salesmen has been frequently blamed for poor printing jobs which were really the fault of the inks, not necessarily because the printer wanted to use poor inks but because he did not know how to be certain of securing those of satisfactory quality for the job and then having them properly applied in his shop.

Mr. Allen's appearance in Chicago marks the first of the new series of educational talks given by men of prominence in the paper and allied industries. Mr. Knott and the entire local organization is to be congratulated on securing the local appearance of the chairman of the Committee on the Standardization of Process Colors.

News of the Trade

The Sixteenth Annual Banquet of the National Association of Waste Material Dealers, Inc., is scheduled for Wednesday evening, March 20, at the Congress Hotel. The dinner will begin promptly at seven o'clock and will be followed by an evening of entertainment sure to be popular with the large attendance expected.

The banquet is being held in conjunction with the annual meeting of the association, including the meeting of the Waste Paper Division on Wednesday, March 20, at the Congress Hotel, 10 a.m., and the meeting of the Paper Stock Division an hour later at the same place and on the same date.

W. P. Paepcke, president of the Chicago Mill and Lumber Corporation, recently announced that his corporation was entering the insulating board field. The announcement coincides with the news that the company has broken ground for the construction of a new plant at Greenville, Miss., which will be used in the manufacture of the new product. The company will invest $1,500,000 in this phase of its business.

H. H. Brown, paper expert of the United States Department of Agriculture, Raymond Day, of Queensland, Australia, and C. L. Hardin, manager of the Industrial Development Department of the Illinois Chamber of Commerce, witnessed the first commercial run of news print paper in which cornstalk pulp was substituted for wood sulphite pulp, the test run being made in the Watab Paper Mills at Sartell, Minnesota, on March 13.

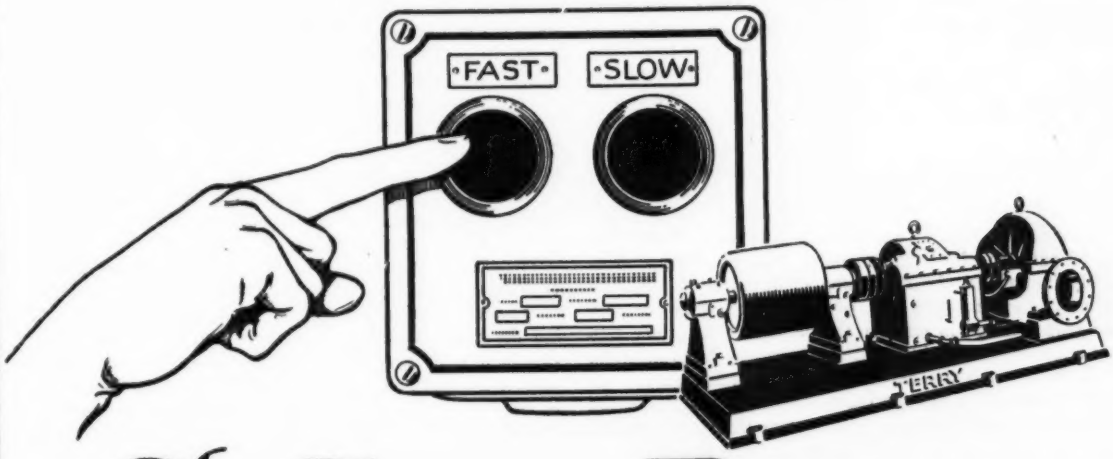
It is reported that the demonstration was entirely satisfactory and showed conclusively the possibilities of the use of cornstalk pulp in the news print field. The run at Sartell was accomplished in the ratio of about 25 per cent cornstalk pulp and 75 per cent ground wood pulp. It is said that this combination does away with the usual opacity noticed in the first runs of news print made entirely from cornstalk pulp.

Go With Fraser Paper Ltd. at Madawaska

MADAWASKA, Me., March 18, 1929.—Leland M. Ester, assistant superintendent of the Androscroggin Pulp Company, South Windham, Maine, who has been with the company for twenty-one years, has resigned to become general superintendent of the new board mill of Fraser Paper, Ltd., here.

Clarence J. Chambers, who has been with the Androscoggin Pulp Company for the past sixteen years also has resigned to become night superintendent of the new board mill of Fraser Paper, Ltd., here.

Under *Push Button* Control



The Terry Paper Machine Drive

Remote speed control is now available with the Terry Steam Turbine Paper Machine Drive.

The paper speed can be adjusted from any convenient location on the machine floor. At a press of the button the speed is altered easily and smoothly.

A Terry engineer will be glad to give you further details.

The Terry Steam Turbine Company

TERRY SQUARE, HARTFORD, CT.
OFFICES IN PRINCIPAL CITIES
Steam Turbines + Gears + Shaft Couplings

T-1030

Canadian Pulp and Paper Industry Expanding

Dominion Now Manufactures More Than Third of World's Supply of News Print Paper and Exceeds United States Output by Approximately 600,000 Tons Yearly—Mills Now Equipped to Make Practically Every Variety of Fine Papers Used In Country

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, March 18, 1929.—According to a statement just issued by the Dominion Bureau of Statistics, which keeps a close tab on the pulp and paper industry of the country, in spite of certain difficulties in connection with the marketing of news print paper which are now being overcome, the industry in the Dominion is making satisfactory progress toward the more complete utilization in Canada of the natural resources of pulpwood. The statement adds: "While the annual exportation from Canada to the United States of over a million cords of raw or unmanufactured pulpwood and the production in Canadian paper mills of a preponderance of comparatively cheap news print, constitute a theoretical economic loss, the industry as a whole shows a strong tendency toward the more profitable manufacture of raw materials within the country. This is clearly indicated by the increased purchases of pulpwood by Canadian mills, the increasing production of pulp in Canada, the decreasing exportation of pulp for further manufacture in other countries, the increase in the proportion of pulp retained in Canada for further manufacture into paper in Canadian paper mills, and the increases in production, the sale in Canada and the exportation of Canadian paper. In the addition of value to raw materials by further manufacture, the pulp and paper industry is the most important manufacturing industry in Canada today. It heads the list in gross and net value of production as well as in wage and salary distribution. It comes second in capital investment and total number of employees. Canada now manufactures more than a third of the world's supply of news print paper, exceeding in 1927 the production of the United States, our nearest competitor, by over six hundred thousand tons. Preliminary figures for 1928 show a lead of almost a million tons. Canada's exports of this commodity are more than eight times as great as those of Germany, her nearest competitor, and exceed the exports of the rest of the world combined. Our exports of news print are only exceeded in value by our exports of wheat. In spite of adverse foreign tariffs and a comparatively restricted home market, the manufacture of fine papers and paper other than news print, in Canada, is developing and Canadian mills are now equipped to manufacture every variety used in the country at the present time."

Net Profits of Corrugated Box

Shareholders of the Corrugated Paper Box Company were presented with a report of the year's operations at the first annual general meeting of the company in Toronto a few days ago. Announcement was made of the company's intention to offer additional preferred and common stock, the proceeds of which financing are to be applied towards the cost of plant expansion in Toronto and Winnipeg. The consolidated balance sheet of the company, together with that of its Winnipeg subsidiary, Hilton Bros., Ltd., showed profits had increased approximately fifty per cent in the period under review, over those of the precedessor companies in 1927, while sales for the first two months of the current year have exceeded those of the corresponding period of last year by over 20 per cent. J. S. A. Whealy, president of the company, presented the director's report and in the course of his speech said: "Profits for the nine months' period ending December 31, 1928, before providing for depreciation, amounted to $174,255.75, and after deducting depreciation of $26,507.56, left a balance of net profits of $147,778.19, out of which regular dividends have been paid on the preferred stock and a sum has been set aside for sinking fund requirements in accordance with the articles of incorporation. The balance of $125,960.60, represents earnings of over $3 a share on the 40,000 shares of common stock before providing for income tax."

News Print $61.50 to Ontario Publishers

News print prices, retroactive to the first of the year, will be $61.50 per ton, according to an announcement made to Toronto newspapers this week. This follows the recent statement of the International Paper Company which published its quotations for United States users of news print on the zone system. By zoning the consumers of news print in the United States, the International Paper Company arrived at the $61.50 basis for Northern New York, and accordingly the Canadian users will fall in the same price category. At any rate the new price to Ontario publishers is $61.50 f.o.b. cars at this point of delivery. In arriving at the basis of settlement, Canadian producers of news print have made the quotations retroactive to January 1.

The definite announcement of price is taken as implying that Canadian news print mills have reached an agreement among themselves covering the division of tonnage as well as determining the question of price. This in turn, would mean that if all Canadian mills are parties to the agreement, and tonnage for Canadian consumption is divided among them, the mills will not be working more than 75 per cent of their capacity.

The settlement of the news print dispute which began last year, which provoked the intervention of the Premiers of Ontario and Quebec, and which has been the subject of prolonged conferences among the producers, has resulted in reduced prices for the mills. If the freight rates are equalled, it will mean that the mills will get $2 a ton less than they were receiving during the last eight months of 1928, as the Toronto price for that period was $63.50 per ton. It will also mean $7 per ton less than the producers were getting during the first four months of last year.

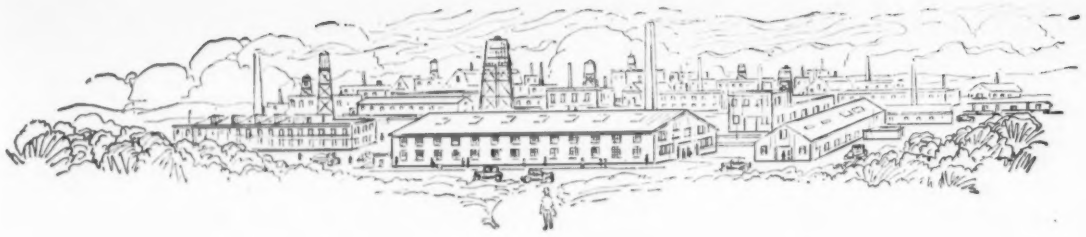
The question of freight rates will doubtless be an important factor in the actual receipts by the producers, as the flat rate of $61.50 per ton had been quoted for the local users, whereas the freight rates vary according to the distance of the mills from the point of consumption. For instance, the rate from Thorold to Toronto is $3.50 per ton, while the rate from lower Quebec is more than $7.

Espanola Honors Plant Official

Espanola, Ont., paid high honors to Mr. and Mrs. W. J. Hussey prior to their departure for Port Arthur, where Mr. Hussey has been appointed to the position of general superintendent of the Thunder Bay mill. Mr. Hussey has been manager of the mills at Espanola for the Spanish River Pulp and Paper Company over fifteen years and has been prominent in every phase of municipal life. The send-off took the form of a farewell banquet which was attended by over a hundred guests, and during the festivities Mr. and Mrs. Hussey were presented with a grandfather's clock. Various organizations also made presentations during the week. C. M. Belden has been appointed to succeed Mr. Hussey.

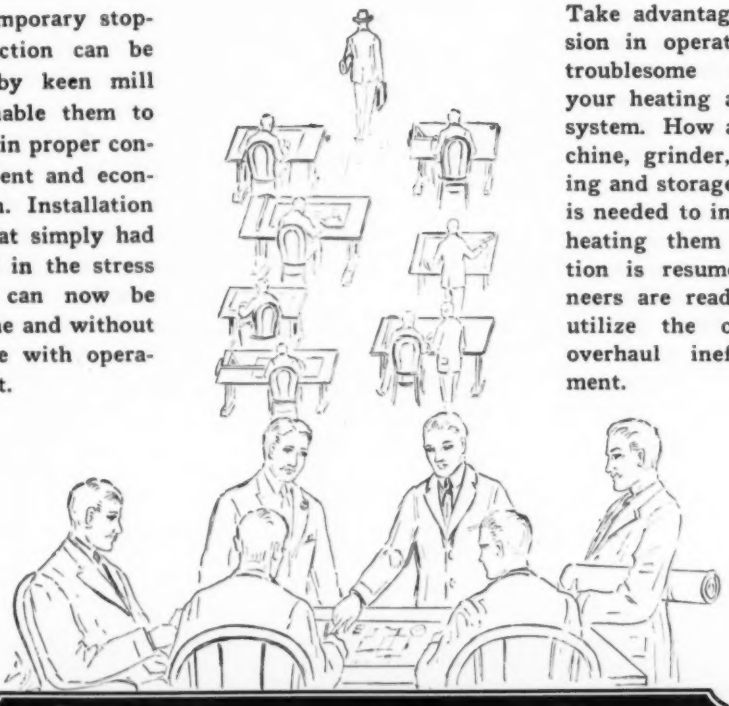
Bathurst Co. Has Good Statement

Annual report of the Bathurst Power and Paper Company, which took over the old Bathurst Company at the beginning of last year, have been received in Toronto, and shows that the company was able to maintain an exceptionally strong liquid position during a period of disturbed conditions in the news print industry. Earnings benefited from the fact that the company's sulphite mill operated 92 per cent and the kraft mill at 100 per cent of capacity. The unsatisfactory market for news print, however, reduced operations in the news print mill to 71 per cent of capacity. As a result manufacturing profits showed considerable shrinkage, amounting to $411,781, compared with an average of



Suspended Operation Provides The Ideal Opportunity to Install Long Needed Plant Equipment !

A period of temporary stoppage of production can be fully utilized by keen mill managers to enable them to put their plants in proper condition for efficient and economical operation. Installation of apparatus that simply had to be neglected in the stress of production can now be made in less time and without any interference with operation of the plant.



Take advantage of a suspension in operation to correct troublesome conditions in your heating and ventilating system. How about your machine, grinder, beater, finishing and storage rooms? What is needed to insure savings in heating them when production is resumed? Our engineers are ready to help you utilize the opportunity to overhaul inefficient equipment.

Let Our Experience Save you Money.

J. O. ROSS ENGINEERING CORPORATION

208 W. Washington Street, CHICAGO — Main Office—30 E. 42nd Street, NEW YORK — 519 American Bank Bldg., PORTLAND, ORE.

ROSS ENGINEERING OF CANADA, LIMITED

NEW BIRKS BLDG., MONTREAL

ROSS SYSTEMS

HEATING—VENTILATING—DRYING

over $800,000 in the three years previous to acquisition of the company by the new interests. Deductions for interest, depreciation, and other charges took $290,034, leaving net earnings of $121,746. The outstanding feature of the balance sheet is the favorable working capital position, as shown by current assets of $2,701,316, compared with current liabilities of $345,325, leaving net working capital $2,358,991, and representing a ratio of eight to one in favor of current assets. Included in the latter are investments in bonds $164,203, call loan $400,000, and cash on hand and in the bank $400,397, a total of $964,400. Receivables stand at $396,221, compared with payables of $258,584, and inventories at $1,207,330. Advances on logging operations comprise the balance of current assets. Total assets of $24,861,472 include property account $22,027,481 and deferred charges amounting $115,228. On the liabilities side reserves for depreciation and depletion stand at $350,318. The directors' report states that it was deemed advisable to install the second news print machine, the contract for which was awarded and the buildings erected by the Bathurst Company. This work is now progressing and it is expected that the machine will be ready for operation by April 1 next.

Abitibi Company's New Magazine

The first issue of "Abitibi," the new magazine put out by the Abitibi Power and Paper Company, Ltd., and replacing the old Broke Hustler, is in the hands of the Ontario paper trade. While essentially the organ of the company and its employees "Abitibi" has set a high standard as a general magazine in its first number which is well got up and extremely attractive typographically and in its selection and arrangement of matter. The Abitibi organization is so large, with nine mills dotting the country from the Gulf of St. Lawrence to Winnipeg, and past it, that the company decided to issue a magazine that would be a common bond uniting the thousands of employees east and west. It provides an opportunity for the exchange of ideas, social as well as industrial, and a medium for a general discussion of problems of interest to everyone in the pulp and paper industry. The initial number contains a number of interesting articles and is profusely illustrated. Alec Dewar is the editor and the editorial office is at 67 Yonge street, Toronto.

Safety Matters Up At Ottawa

The Eastern Group of the Ontario Pulp and Paper Makers' Safety Association met at Ottawa on March 12 in the board room of the J. R. Booth Company and listened to an able address by T. N. Dean, chief statistician of the Ontario Workmen's Compensation Board who elucidated many features of the Act under which the Board operates. Among these were certain clauses affecting the pulp and paper industry in their application to both employers and the workmen. Mr. Dean's address was a clear exposition of the legal aspects of the Act, with particular reference to the benefits accruing thereunder and the responsibility of the employer and employee, while the importance of the employees and doctors furnishing full information and immediate reports in cases of all accidents was stressed. He also expounded the principal of rehabilitation and pointed out certain cases where by united action the doctors and the board could reduce the period of rehabilitation. At the close of the address the meeting was thrown open for discussion and many questions were asked by the delegates and replied to by Mr. Dean.

Notes and Jotting of the Trade

Ontario paper manufacturers are in receipt, from Brown Corporation, Quebec, of samples of their new fiber known as "Duracel." It is an extremely long fiber pulp with about the same freeness as a long fiber sulphate. The average is approximately 70 per cent air-dry fiber. The logical field for the pulp is to replace rope in rope paper. Samples of sheets of paper from a trial run have also been sent out and both have made a favorable impression on the paper trade.

When the Don Valley Paper Company, Ltd., took over the old Don Valley paper mill in Toronto, they also had deeded to them about 40 acres of land on which for many years the manufacture of paper and bricks was carried on. The paper company is selling the surplus land and a few days ago disposed of an acre to an industrial concern.

Charles V. Syrett, head of the C. V. Syrett Paper Company, Ltd., Front street, Toronto, leaves at the end of this month on a holiday trip to England, his native land.

The annual meeting of the Ontario Pulp and Paper Makers' Safety Association will be held at the King Edward Hotel on April 5, when the budget for the year will be presented, officers elected and reports by the secretary-engineer, A. P. Costigan, received.

Beautifully printed and containing many practical folder suggestions, the Rolland de Luxe portfolio, dealing with the new Rolland de Luxe paper, has been circulated throughout the Canadian paper and printing trades. The portfolio was prepared to be of practical use to printers in order to help create sales. They offer definite ideas on jewelry, furniture, furs, shoes, trust companies, etc., while samples of the paper are shown in India, white and blue.

George La Monte & Son, Toronto manufacturers of Banker's, National and other safety check papers, have taken action against Commercial Paper Company, Ltd., a subsidiary company of Litho-Print, Ltd., for an infringement of their papers. The Commercial Paper Company produces the line of Dominion safety check paper. Toronto and Montreal paper dealers have been called to give evidence when the case comes to trial.

Central Ohio Paper Co. Expands

March, 1929, will go down in the calendar of the Central Ohio Paper Company as a month of development in sales and service efficiency. In three cities, Pittsburgh, Indianapolis, and Dayton, the company has moved into new quarters which greatly increase its facilities for accommodating Copco customers.

The largest late move of expansion on the part of the company was the recent taking over of the Buyer's Paper Company, located at 131 East Sixth street, in Dayton. For nearly ten years this wholesale paper house has served its home city and the surrounding territory. The personnel of the company will continue practically unchanged with the addition of W. H. Bancroft, who has been in charge of the Copco Dayton office for the past fifteen years and a vice president of the parent company. R. M. Keogh, who has been so successful in building up the Buyer's Paper Company, will be associated with Mr. Bancroft in the management of the Dayton Division of the Central Ohio Paper Company, located at 131 East Sixth street.

The expansion in Pittsburgh and Indianapolis, according to Copco officials, is for the same reason as at Dayton, to increase the efficiency in handling Miller-Quality Papers, which the company has marketed for years, the Copco organization dating back half a century. It is also the aim to greatly augment the sample, dummy and other services required by Copco customers in these cities.

In Pittsburgh, the company has moved into larger and more commodious quarters in the Point Building, at the corner of Pennsylvania avenue and Water street, where larger stocks will be carried than heretofore. W. D. Lamb will have charge of the affairs at Pittsburgh. H. W. Balmer has been added to the sales force.

A similar move was recently made at Indianapolis, where the new address is 230 South Pennsylvania street. The new location provides a much larger space and makes possible the installation of a complete service department for making up dummies as well as ample space for carrying stocks of Miller Quality Papers for prompt deliveries.

S. W. Lloyd, who has been in charge of the Indianapolis division for many years, will remain as head of the larger organization, with A. E. Hoover assisting in directing the sales of the Mosinee products for which the Central Ohio Paper Company is exclusive agent in Indiana.

Micrometer Finished and More Than Skin Deep Beauty

The mirror surface of a dryer is not the only factor in making a perfectly dried sheet. Absolutely uniform heat distribution is essential — and Bagley & Sewall achieves this by machining the *inside of the rolls* to a high degree of finish. Drying rolls of every desirable size up to 25 feet long, *uniform in shell thickness* throughout their entire length. Truly a mechanical achievement—yet a matter of regular shop practice in maintaining Bagley & Sewall standards. Special facilities, special tools, specialized skill produce ideally finished, perfectly balanced rolls at prices comparable with the cost of ordinary ones.

There's more we'd like to tell you about them—write us.

The Bagley & Sewall Co.

Watertown, N.Y.

Paper Industry Expanding in New Brunswick

Construction of Large News Print Plant for International Paper Co. At Dalhousie Now Being Rushed—May Come Into Operation At Latter Part of Present Year—Power to be Supplied From Grand Falls Hydro-Electric Development

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 18, 1929.—The Hon. Charles Richards, Minister of Lands and Forests for New Brunswick, in a report presented to the Provincial Legislature, gives particulars of a remarkable expansion in the pulp and paper industry in New Brunswick, and holds out hopes that the immense new news print mill at Dalhousie, on which work is now being rushed, will come into operation at the latter part of the present year. The report says in part:

"The New Brunswick International Paper Company has commenced erection of a large news print plant at Dalhousie. Of the best construction that modern engineering skill can devise this plant, costing approximately $15,000,000 when completed, is designed for an ultimate daily capacity of 500 tons and will have an initial installation of two machines with a daily capacity of 250 tons. Power to operate the Dalhousie mill will be supplied from the Grand Falls Hydro Electric Development, a high tension transmission line about 125 miles in length connecting the power house to the mill. A force of 400 men are now engaged in construction, which is expected to be increased to 1,500 in the spring. It is anticipated that the plant will be in operation late in 1929. The construction of this mill is of unusual importance as it makes possible the closer utilization of our wood as well as manufacturing it completely within New Brunswick.

"The Restigouche Company, Ltd., has commenced construction of a large high grade bleached sulphite pulp mill at Athol and it is expected that the new plant will be in operation before the end of 1929. The Restigouche Company, Ltd., is controlled by the Fraser Companies, Ltd., through ownership of its entire capital stock. This pulp mill, which will cost approximately $4,000,000, will have a capacity of 45,000 tons annually and will, when completed, in conjunction with the Dalhousie Paper Mill, make possible the closest utilization of our forest products which has not been possible on the Restigouche River previously.

Edmundson Pulp and Paper Board Mills Enlarged

"During the year 1928, Fraser Companies, Ltd., constructed an extensive addition to its paper board mill, increasing the capacity to 18,000 tons per annum of high grade paper board. The company also constructed during the year a ground wood mill with a capacity of 42,000 tons per annum. There were also made extensive additions to its principal plant at Edmundston and to that of its subsidiary which will have the effect of approximately doubling its present production of finished high grade sulphite paper and pulp products. The Fraser Companies, Ltd., also became the first customer to receive electrical power from Grand Falls, having contracted for 20,000 horse power for their mills at Edmundston. Delivery of power commenced on October 1 over Fraser Companies, Ltd., own transmission line from Grand Falls.

"The Bathurst Power and Paper Company are installing a second news print machine which, when completed, will double their capacity. Without the Grand Falls power development the operation of these pulp and paper mills would not have been possible and the development at Grand Falls seemed impossible unless industrial enterprises were undertaken which would provide a market for the power developed. The projects were therefore interdependent and it required protracted negotiations of a most exacting nature to coordinate and bring about this great industrial activity which is now well under way. There is no doubt whatever that the utilizing of our water powers for the complete manufacture of forest products within the province will contribute very substantially to New Brunswick's prosperity. Not only will large quantities of logs be diverted from the long lumber industry to be more completely manufactured into pulp and paper but vast quantities of raw materials in the shape of large tops and defective logs formerly left in the woods to rot because unsuitable for sawn lumber will hereafter be taken out and utilized in the new pulp and paper mills. These mills will also provide an additional market at home for the 200,000 cords of granted and pulp wood now annually being shipped out of New Brunswick in the raw state."

The Lake St. John Power and Paper Company has commenced the construction of a hydro-electric power plant of 20,000 h.p. on one of its power sites adjoining its paper mill at Dolbeau, Lake St. John district. The output will be used entirely for the company's own purposes. Since its completion the paper mill, designed to produce 220 tons of news print per day, has been operating continuously at above capacity, runs on three successive days being 270, 269 and 275 tons, respectively. Possibly the company's output will now be reduced to the average of other mills, in view of the news print agreement.

Guy Tombs and A. S. Kirk, of Guy Tombs, Ltd., Montreal, left Montreal last night for St. Augustine, Florida, where Mr. Tombs will again be a witness for the eastern Canadian mills in the second hearing of the general investigation into freight rates on news print, which is called for March 20 in St. Augustine.

Gulf States Paper Mill Makes First Cook

The first cook of Sulphate pulp was made this week at the new mill of the Gulf States Paper Corporation at Tuscaloosa, Alabama.

The new plant consists of a pulp mill, a paper mill and a bag factory. The pulp mill is equipped with four digesters and has a capacity of 300,000 lbs. of sulphate pulp every 24 hours.

The evaporator, which was furnished by the Joubert & Goslin Machine and Foundry Company is horizontal tube to insure minimum waste of tubes from corrosion by the gases from the sulphate black liquor.

The company without increasing the height of the tube bank and by careful design of holders for the tube sheets has succeeded in getting around 15 per cent more heating surface in this evaporator than ever before. This is a 13-foot diameter quadruple effect and on the end is a Swenson high concentrator to bring the liquor up for better furnace operation.

The company has installed the heat exchanges for bringing most economical operation of evaporation, and new J. & G. heavy duty vacuum filters, 6x3 feet diameter, will handle the lime sludge.

A 234-inch Beloit Iron Works Fourdrinier has been installed in the paper mill. This machine was specially designed for the Gulf States Paper Company, and will be one of the most up-to-date machines in use.

The plant will produce approximately 90,000,000 lbs. finished paper and bags per year or 300,000 lbs. per day.

Rotary Gas Pumps

A new sixteen page bulletin on "High Pressure Type Rotary Gas Pumps" has just been issued by the P. H. and F. M. Roots Company, of Connersville, Indiana. The bulletin gives complete tabulated data on pressures, capacities and horse powers, a brief review of various types of pumping units, and a comprehensive two-page construction drawing showing the typical unit in detail. The bulletin is so constructed as to make a valuable addition to the large Roots catalog covering Pumps, Meters and Blowers.

"This Chart speaks for itself"

"IN our *mill* figuring," chuckled the superintendent, "four and four make eight. But here's a case where *one* and four make eight." And he returned the manager's puzzled look with a grin.

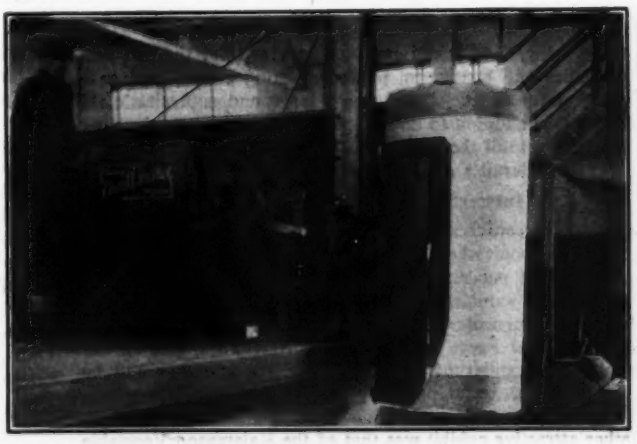
"Recall that E-P Electric roll handling Tructor we bought a few weeks ago? Well, here's the result. Before we bought the Tructor, eight men were performing our finishing and loading job. Now the E-P Crane and *four* men handle the same work.

"That's why one and four make eight with a saving big enough to pay for the Tructor in less than a year. These are the actual figures:"

By Hand—8 men—8 hours @ 45c		$28.80
With Tructor—3 men—8 hours @ 45c	$10.80	
Tructor Operator—8 hours @ 55c	4.40	15.20
Daily Saving in labor cost		13.60
Saving per ton		.14
Total Yearly Saving—35000 tons		$4,900.00

It costs nothing to find out whether Elwell-Parker Tructors cannot make equal savings in your plant. Hundreds of Elwell-Parkers are in use today in industrial haulage jobs that the users were at first sure they could not fit. But Elwell-Parker has had 22 years experience to bring to your specific problem. There's an E-P representative who will gladly discuss the situation with you. Phone him or write us direct.

THE ELWELL-PARKER ELECTRIC CO.
4500 St. Clair Avenue Cleveland, Ohio
Representatives in all Principal Cities



ELWELL-PARKER TRUCTORS

PIONEERS IN ELECTRIC TRUCTOR MANUFACTURE

Metropolitan Paper and Bag Men Convene

The Twelfth Annual Luncheon, Exhibition and Banquet of the Metropolitan Bag and Paper Jobber's Association, Inc., attracted a large and enthusiastic attendance last Thursday at the Hotel St. George, Brooklyn, N. Y., and proven an unqualified success, from every standpoint.

Proceedings were opened with an enjoyable luncheon tendered to the members and guests by the association, after which a conference and forum was held. Thomas J. Nagle, president of the association, occupied the chair, and welcomed the gathering in his timely opening speech. Mr. Nagle also emphasized the important work accomplished by the organization.

The chairman then introduced Judge Humphrey, one of the principal speakers, who was heartily received by the audience. Judge Humphrey took as his subject "Jury Duty" and appealed to those present to uphold the courts in every way and not to shirk their obligations as citizens of this great country.

Trade Practice Conferences Discussed

Dr. E. O. Merchant, Economist of the Paperboard Industries Association, gave an interesting and informative address on "Trade Associations" and "Trade Practice Conferences." He explained in a comprehensive manner how a well equipped association could assist its members in solving their particular problems and declared that "Trade Practice Conferences" were an extension or continuation of trade association work.

Dr. Merchant explained the procedure necessary in getting a Trade Practice Conference started and completed. He also analyzed the various rules and trade practices adopted by his industry and stressed their advantages and results. He also showed how unfair practices were being eliminated and claimed a much better spirit in the industry as a result of the efforts of its members to correct abuses and to work in harmony with each other.

Thomas D. Austin, a well known lawyer, practicing in Long Island, gave an impassioned address on "Co-operation in Industry." He declared that although it was the nature of man to be selfish, little of importance had ever been accomplished without the spirt of cooperation and fair play being invoked. Incidentally, Mr. Austin also spoke in an interesting way of forestry conditions in his native state of Maine.

In the evening, the Annual Banquet, arranged for the presence of both ladies and gentlemen, proved a fitting culmination to a highly successful event. There was a large and enthusiastic attendance and in addition to an exceptionally good dinner, dancing was indulged in until the "wee sma' 'oors of the morning," to the strains of Ben Bernie's celebrated orchestra.

Interesting Exhibits Displayed

Following the conference the members and guests adjourned to the exhibition room where an extensive merchandise display by manufacturers of papers and allied products had been arranged. Many attractive exhibits were demonstrated, the following of which were of particular interest to the paper industry:

The Continental Paper and Bag Mills, New York, had an exceptionally fine exhibit of the many products manufactured by that organization, including wrapping paper, kraft specialties, paper bags, etc.

Another attractive exhibit was that of the Kalamazoo Vegetable Parchment Company, of Kalamazoo, Mich., which included vegetable parchment and waxed papers, household specialties and parchment bond writing paper.

The Waxed Products Company, of the Bush Terminal, Brooklyn, N. Y., exhibited Fresh Pack heavy waxed paper and Fresh Pack tissues in white, red and green.

Wolverine Bleached Parch, Fletcher's Mitch Tex, North Star Fibre and Fletcher's Mitch Bleached, were some of the specialties shown by the Fletcher Paper Company, of Alpena, Mich.

The Bayless Manufacturing Corporation, of Austin, Pa., had an artistic Booth at which was displayed "Hy-Test Wrapper," "Red Cap Fibre," "Bayco Fibre," "William Penn Blood Proof Wrapper," "Bayless Jewel Fibre" and "Amber Fibre."

"Sanispoons," "Saniforks," Ice Cream Plates, Pie Plates, Picnic Plates, "Sanico" Lunch Sets and Specialties, were shown in the attractive exhibit of the Sanitary Products Corporation, of Philadelphia, Pa.

The Public Service Corporation, of the Bush Terminal, Brooklyn, N. Y., had a very large display of Lily Cups, Lily Dishes and Accessories, which proved a great attraction to visitors.

Individual Dixies, Sundae Dishes and Holders and other specialties were ably demonstrated by the representatives of the Individual Drinking Cup Company, Inc., of Easton, Pa.

McKenna & Phelps, Inc., paper converters, New York, merged recently with the Palmer Paper Company and John N. Young, presented an interesting display of cash register rolls, adding machine rolls and small roll specialties.

Toilet papers and paper towels were artistically displayed by Harry A. Raynor, representing the White-Washburne Company, with mills at Hinsdale, New Hampshire.

The Frank M. Sayford Company, of Brooklyn, N. Y., showed the various Sayford products, including napkins in bulk and packages, service cloths, tray mats, doilies, table mats, butter chips, fancy paper plates, Tortoni cases, household rolls, etc.

Alfred Bleyer & Co., of Brooklyn, N. Y., had a comprehensive exhibit of glassine bags, picnic plates, oyster plates, sandwich bags, blue plates, Christmas plates, decorated plates, etc.

The Sealright Company had an artistic display of cylindrical and liquid tight paper containers which attracted much interest and admiration.

A large and comprehensive line of tissues and toilet paper was shown at the booth of the Park Tissue Mills, manufacturers, of Long Island City, New York.

Toilet papers, paper towels, Atlasta dishes, and other specialties, were artistically displayed by the Frank L. Scott Company, sales division of the Stevens and Thompson Paper Company.

The Smith-Lewis Fibre Can Corporation, of Lowville, New York, showed Saniseals of various varieties. Saniseals are sanitary fiber containers for liquid, moist and dry products.

Other interesting exhibits were shown by the A. W. Archer Company, New York, who presented an elaborate display of cords and twines; the Utility Company, Inc., New York, who demonstrated "Gre-Solvent" and distributed samples; *Paper and Paper Products;* the Diamond Match Company; the Diamond Candle Company, Inc.; the Worcester Salt Company, New York; the Herz Straw Company, Demonstrating Sunshine Straws; the Burroughs Adding Machine Company, of Detroit, Mich.; the Brillo Manufacturing Company, Brooklyn, N. Y., presenting an utensil and household cleanser; the Rodway Sales Company, showing Gorham Silver Polish and Fyr-Pruf Stove Polish; Stanco Inc., of Bayway, N. J., demonstrating "Flit" exterminators; John Opitz, Inc., showing J-O products; and S. E. & M. Vernon, displaying blank books and stationery for paper and twine merchants use.

Westinghouse Receives Paper Mill Order

The Albemarle Chesapeake Corporation at West Point, Va., recently placed an order with the Westinghouse Electric and Manufacturing Company for the electrical equipment for a new unit of its plant. The order includes two turbine generators, one, a 2500 kw. condensing unit and the other a 1500 kw. non-condensing unit; a surface condenser, a complete switchboard, and a sectional electric drive for a 240-inch, 100-850 f.p.m. Pusey & Jones Fourdrinier paper machine.

NATIONAL
CROCEINE SCARLET FP CONC.

ESPECIALLY recommended for dyeing chemical pulps in the beater.—Possesses excellent fastness to light.—Does not foam, and leaves a nearly colorless "whitewater."

National Aniline & Chemical Co., Inc.
40 Rector Street, New York, N. Y.

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CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Lock Haven, Pa.—The New York & Pennsylvania Company 200 Fifth avenue, New York, has awarded a general contract to the John W. Ferguson Company, 152 Market street, Paterson, N. J., for its proposed new plant addition at Lock Haven, to be two-story and basement, 60 x 375 feet, brick and reinforced concrete, reported to cost approximately $140,000, with equipment. It will be used primarily for storage and distributing service.

Antioch, Cal.—The Fibreboard Products Company, San Francisco, a subsidiary of the Paraffine Companies, Inc., same address, has active construction under way on its proposed new mill at Antioch, to be used for converting service. It will be brick, steel and concrete, reported to cost about $100,000, with machinery, list of which is being arranged. Contracts for plumbing, electric wiring and other completion work are being let. Barrett & Hilp, 918 Harrison street, San Francisco, are general contractors; Leland Rosener, 233 Sansome street, same city, is engineer.

Coatesville, Pa.—The Coatesville Paper Mills, Inc., recently organized with a capital of $150,000, by George D. Kilberry, Downington, Pa., and associates, is said to be planning early operation of a mill in the vicinity of Coatesville. Mr. Kilberry will be treasurer of the new organization. Tuley L. Peterson, Coatesville, is interested in the company.

New Brunswick, N. J.—The Richardson Company, 2136 West Boulevard, Cleveland, Ohio, manufacturer of paper cartons, battery boxes of corrugated board, and other paper containers, has arranged for a lease of two floors of the factory on Codwise avenue, New Brunswick, heretofore used by the American Incubator Company, and will occupy for a new plant: The space totals about 40,000 square feet, and will be equipped at an early date. It is understood that the Richardson Company will continue Cleveland plant at that location and develop the New Brunswick factory to handle all eastern trade. Extensive output will be arranged. The third floor of the three-story factory will be used by the American Incubator Company for about a year, when the Richardson organization will take over for further expansion.

Madison, Me.—The Great Northern Paper Company, Madison, has concluded negotiations for the purchase of the former local mill of the American Woolen Company. It is understood that the structure will be remodeled and improved and used by the Great Northern company for expansion, primarily storage and distributing service.

Salem, Ohio.—The Church Budget Envelope Company has begun the construction of its proposed new factory on Depot street, one and two-story, brick and steel, estimated to cost about $75,000, with equipment. A list of machinery to be installed has been arranged. The new unit will be pushed to early completion. Melvin E. Lutz, 333 Belleflower avenue, N. W., Canton, Ohio, is architect, in charge.

West Point, Va.—The Albemarle-Chesapeake Corporation, West Point, has awarded a contract to the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., for electrical equipment for new paper mill unit now in course of construction, the installation to be used, as well, for power service in present mill. The order includes one 1500 turbo-generator, non-condensing type, and another such unit of 1250 kw. rating, condensing type; surface condenser for the latter, switchboard and complete auxiliary equipment. Also, for a sectional electric drive for new 240-inch paper-making machine, the latter being furnished by Pusey & Jones, Wilmington, Del., and for which contract was placed at an earlier date. It is expected to have the installation ready for service in the near future.

Huttig, Ark.—The Union Saw Mill Company, Huttig, operating a large plant in this vicinity, is said to be interested in a project to construct and operate a paper mill on site about two miles from Huttig, to utilize waste material from the lumber plant for pulp production . As now projected, the new plant will consist of several units, with machine shop, boiler plant, pumping station and auxiliary mechanical units, and is reported to cost upward of $2,000,000. It is understood that the mill will be used for the production of kraft papers. F. W. Scott is vice president and general manager of the Union Saw Mill Company, which is a subsidiary of the Frost-Johnson Lumber Company, St. Louis, Mo.

Stanton, Del.—The Ad-Tissue Corporation, William H. Appleby, president, recently organized under state laws, has concluded negotiations for the purchase of the former woolen mill property of the Kiamensi Woolen Company at Stanton, consisting of 15 acres of land and several buildings, including dwellings for operatives, and water power rights. The property will be taken over at an early date and will be remodeled and improved by the purchasing company. Equipment will be installed for the production of tissue papers and large capacity is planned. The entire project is reported to cost upward of $150,000, with machinery.

Springfield, Mass.—The Longview Fibre Company, Longview, Wash., has concluded arrangements for the purchase of the plant and business of the General Fibre Box Company, Springfield, and will consolidate with its organization. The Springfield plant will be continued as heretofore, under the General company name, which will be operated as a division. It is understood that increased capacity will be arranged at an early date. The Longview company is said to be planning the early issuance of bonds in amount of $1,500,000, a portion of the proceeds to be used for general expansion.

Newark, Del.—The Continental-Diamond Fibre Company, recently organized to take over and consolidate the Continental Fibre Company, with mill at Newark, and the Diamond State Fibre Company, with plant at Bridgeport, Pa., has arranged for the sale of a stock issue to total $2,335,000, a portion of the proceeds to provide for the merger, and proposed expansion in operations. The company will continue the operation of a mill at Toronto, Ont., as well as other plants in England and France. John P. Wright is president.

Marshfield, Ore.—Officials of the Coos Bay Lumber Company, with plant at Marshfield, are reported considering the construction of a new pulp and paper mill in connection with present saw and lumber mill operations, utilizing the mill waste and logs of low grade for raw material supply. The proposed plant will

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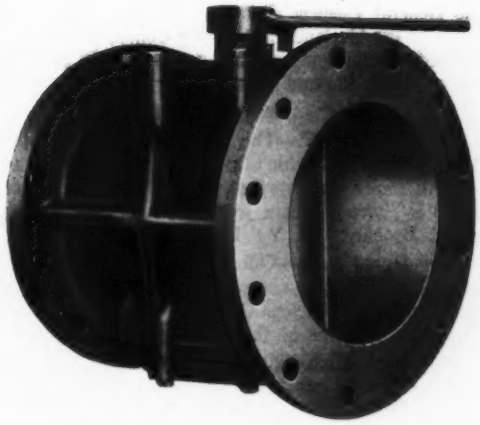

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Machinery for Paper and Pulp Mills

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occupy a site of an old building, originally designed for pulp mill service, but operated only a short time. The project is reported to cost more than $1,000,000. Plans have not as yet reached a definite stage; size and details, however, are expected to be determined in the near future. Homer W. Bunker is president.

New York, N. Y.—Michaelman & Friedland, Inc., manufacturer of paper boxes and containers, has leased space in the building at 150 West Twenty-second street, and will establish a new plant at that location.

New York, N. Y.—The Spear Box Company, Inc., 18 West 18th street, manufacturer of paper boxes and containers, has leased space in the building at 23-27 West 17th street, and will occupy for expansion.

Montreal, Que.—In a recent reference in these columns it was incorrectly stated that the International Paper and Power Company had placed a contract for four paper mill drives with the General Electric Company, Canada. This award has been made to the Harland Engineering Company, Montreal, we are informed by that company, and covers electric paper mill drives of the standard Harland type.

New Companies, Etc.

New York, N. Y.—The Red Star Paper Company, Inc., has been incorporated with a capital of $10,000, to manufacture and deal in paper goods of various kinds. The incorporators are Jacob S. Spiro, William Joachim and Mortimer May, 270 Crown street, Brooklyn, N. Y. Last noted is company representative

Providence, R. I.—Officials of the Providence Paper Company, 46 Weybosset street, have filed notice of organization of the Providence Envelope Company, as a subsidiary interest. C. M. Butler is treasurer of the parent company.

Vicksburg, Mich.—The Elam Papeterie Company, organized under Delaware laws with capital of $70,000, has filed notice to operate at Vicksburg. It is said that a plant will be established at that place for the manufacture of paper specialties. S. L. Elam, Vicksburg, is head.

Lockport, N. Y.—The Trans-Pacific Lumber and Pulp Export Corporation has been incorporated with a capital of 200 shares of stock, no par value, to deal in pulp products. The company is represented by Wilson & Smith, Williamsville, N. Y., attorneys.

Albany, N. Y.—The Menasha Products Company, Menasha, Wis., manufacturer of paper containers, has filed notice to operate in New York, with capital of $20,000.

Chester, Pa.—The Scott Paper Company has disposed of a common stock issue to total $693,000, the fund to be used for general financing and operations . The sale does not represent any new financing on the part of the company, the stock allotment having been acquired from individuals.

Newark, N. J.—The Premier Novelty Company, 138 Mulberry street, has filed notice of organization to deal in paper products of various kinds. Arthur M. McHugh, 516 Richmond avenue, Maplewood, N. J., is head.

A. M. Adams Heads Engineers Club

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., March 11, 1929.—Arthur M. Adams, chief engineer of the Kalamazoo Paper Company, was Wednesday evening elected president of the Chief Engineers Club to succeed E. C. Rutz, chief engineer of the Bryant Paper Company, who has occupied the chair for two and a half years. The executive board consists of A. E. Woollam, manufacturers agent and secretary-treasurer of the organization; Charles Roberts, Bryant Paper Company, chairman of the committee on arrangements, and Charles Neil, chief engineer of the Michigan Paper Company, Plainwell, chairman of committee on entertainment and speakers.

The election followed a dinner and program. Frank A. Simonds, Grand Rapids, spoke on "The Ames Una-Flow Engine." The meeting was held at the Columbia Hotel.

Casein Production Doubled

WASHINGTON, D. C., March 20, 1929.—Casein is swiftly assuming an important position in United States trade, according to the Department of Commerce. Production as well as imports of casein have more than doubled within the last decade.

Figures by J. N. Taylor, Chemical Division of the Department, reveal that over 18,000,000 pounds were produced in the United States in 1927, more than twice the 8,000,000 pound output in 1928. At the same time imports have jumped from 12,000,000 to 27,000,000 pounds, making casein the fourth largest chemical raw material imported.

Casein (lactarene) is, chemically, a protein found in milk in the form of calcium caseinate, and, consequently, is capable of preparation in any part of the world where the milk of mammals is obtainable. A form of casein is now produced in Japan from the soy bean.

For the manufacture of casein, the chief raw material used is skimmed milk, which contains beside casein, albumen, milk sugar, and certain salts. Prescription of the casein is accomplished in one of four different ways: (1) The natural method, allowing the milk to sour until the casein is thrown down; (2) by lactic acid; (3) curding by the addition of a mineral acid; and (4) through rennet precipitation. The curd is then washed with water, pressed, dried, and ground.

Behr-Manning Co. Completes New Buildings

The Behr-Manning Corporation, of Troy, N. Y., formed a few months ago by the consolidation of the Herman Behr Company, of Brooklyn, and the Manning Abrasive Company, of Troy, has completed several new buildings started at the time of the consolidation, and necessitated by the decision to move the Brooklyn production to the Troy plant. A new office building, constructed by the company's own forces, was completed and occupied a short time ago.

The factory buildings consist of a one story brick and steel structure 275 feet x 65 feet, furnishing storage space for mill supplies and housing machine shops; a four story concrete building 80 x 260 feet for manufacturing purposes, and a five story concrete grading building. Part of the new construction displaced the existing boiler plant, and a new boiler plant was constructed as part of the manufacturing group. This boiler plant furnishes steam for heating and manufacturing purposes. The railroad siding was extended to serve a track hopper, from which coal is conveyed through a tunnel and elevated to hoppers which serve the automatic stokers at the three new boilers. Space is provided for a fourth boiler if required in future.

This construction was carried out under the management of the Morton C. Tuttle Company, of Boston.

Adirondack Lumbermen Meet

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., March 2, 1929.—A meeting of the Adirondack Lumbermen's Association was held during the past week at the Queensbury Hotel with the main topic of discussion being the lien law. Among the prominent speakers were Colonel John R. Rose, of New York, Frank Alles, secretary of the New York State Lien Law Committee, Paul S. Collier, of Rochester, manager of the Northeastern Retail Lumber Dealers Association, and V. C. Carrou, of Syracuse.

Armstrong Cork Co. Moves Offices

The Armstrong Cork Company announces the consolidation of the offices of all its divisions at Lancaster, Pa., effective April 1, 1929. This involves the removal from Pittsburgh of the general office of the company and all executive offices of the Armstrong Cork Company, Cork Division, and of the Armstrong Cork and Insulation Company, with the exception of the purchasing department, which will remain in Pittsburgh. All communications hereafter should be directed to the new address.

A masterpiece of American Engineering rises with Condor Belt

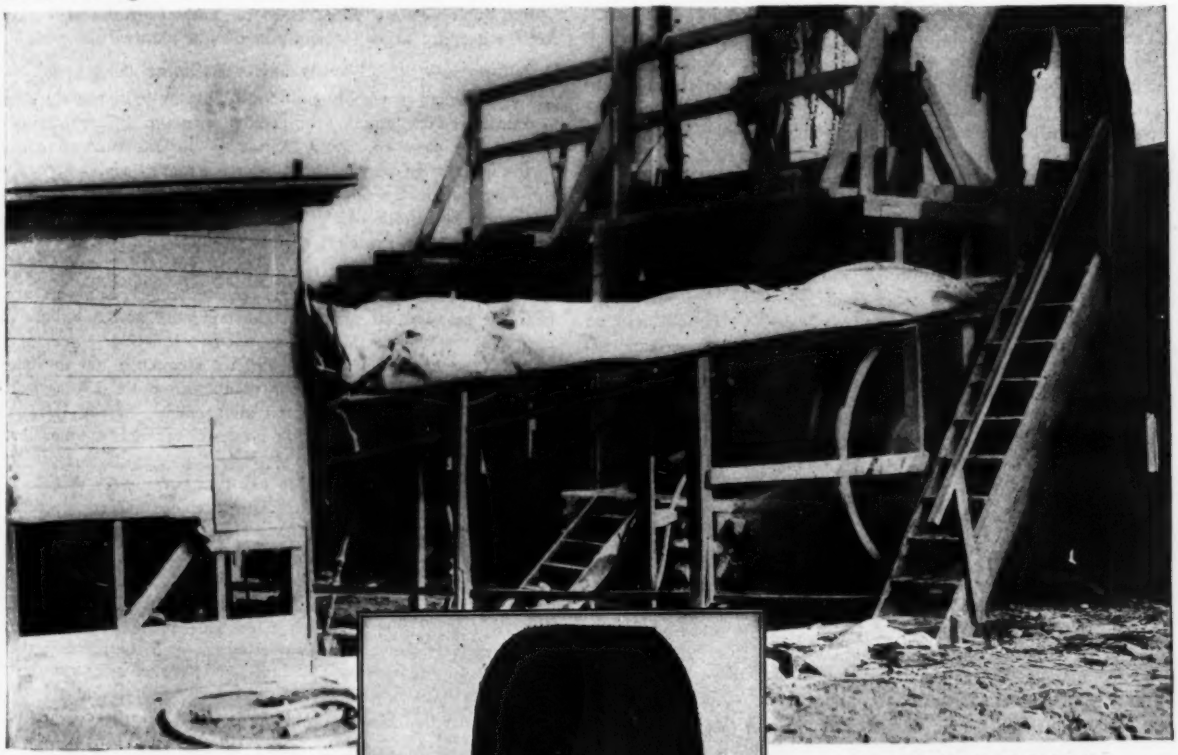
The New Hudson Bridge to be completed in 1932—costing $75,000,000. Over-all length, 4,800 feet. Central span, 3,500 feet.

PIERCING the silhouette of the Palisades of New Jersey, massive towers raise their heads in dignity—670 feet above sea level—entrusted to uphold in face of time and storm, a masterpiece of American engineering—the mighty Hudson River Bridge.

Only the finest of materials, the sturdiest of machines guided by the pick of the engineering profession are eligible in this Herculean task. Teamed with this assemblage, Condor Belt exclusively transmits the power that raises this monument to Progress.

The picture shows a 20″ 7-ply Condor Belt, the main drive of an immense 40″ x 48″ Buchannan Jaw-Crusher. For 12 hours every day, Condor Belt turns the gears of this crusher as it grinds over 800 cubic yards of Palisades rock—one of the hardest known—making the backbone of the Hudson River Bridge.

Bathed in a continual shower of rock dust, through rain, cold and heat, Condor Belt carries on—meeting each cry for power in the erection of this modern Colossus. Demand for such rugged and severe service is unusual—yet even the most delicate jewelry lathe reflects the efficiency of Condor Belt.



A 20″ 7-ply Condor Belt driving a 40″ x 48″ Buchannan Jaw Crusher on New Jersey side of Hudson River Bridge.

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Condor BELT

Administering Safety Work in Distant Plants

By M. G. Hoyman [1]

Several pulp and paper mills of the Kimberly-Clark Corporation are located within twelve miles of the general offices in Neenah, Wis. Another group of mills may be called "distant plants." One mill in this group is 130 miles from Neenah; another is 700 miles away; another mill is 1,400 miles away.

My frank opinion is that the administration of safety work in a number of outlying mills differ but little from the administration of safety work in a single mill or in a number of mills situated near each other. Each mill has its own risks and problems. Before safety can function in any given plant a program must be built around the plant's needs.

There are few devices or procedures specifically designed for "Keeping safety at work in distant plants." The fact that some of our plants are separated from others by many miles has not been a large determining factor in our choice of safety organization and safety methods. Nevertheless, we feel that our safety organization and methods have been successful in keeping safety at work not only in our near by, but also in our distant plants.

Some Safety Methods Described

Therefore, I shall describe some of our safety methods which seem to work particularly well in our distant plants. I shall point out all their characteristics which are results of the distant location of the plants. Then I shall attempt to generalize upon our experience. I hope that from these remarks and from the ensuing discussion you may get some ideas on adapting our findings to your own needs.

Before describing our safety work in distant plants, we might see how well that work has succeeded in reducing frequency and severity of accidents. The proof of the pudding is the eating. Allowing me to give you some data upon safety results in a mill which is 130 miles from our main offices.

During the four years, beginning with 1914, this mill had an average of 105 accidents per year. As a result of these accidents in average of 1,401 working days were lost each year. During the four years beginning with 1924 this mill had an average of only eleven accidents per year. As a result of these accidents an average of only 593 working days were lost each year. The days lost in the later period were less than half the days lost in the earlier period despite an increasing pay roll.

The progress of safety in this mill may be shown in another way. During the four years beginning with 1914 there were sixteen accidents per year for every hundred men on the pay roll. During the four years beginning with 1924 there were but two accidents per year for every hundred men on the pay roll.

During the four years beginning with 1914 the lost time caused by accidents in this distant mill amounted to two days per year for each man on the pay roll. During the four years beginning with 1924 the lost time caused by accidents amounted to but one day per year for each man on the pay roll. During this ten-year period the accident frequency rate was cut down to about one-eighth (12 per cent) of its original value. The accident severity rate was cut down to less than one-half (47 per cent) of its original volume.

Accident Frequency Rate Reduced

In another large mill the last decade has seen the accident frequency rate reduced to 11 per cent of its original value and the accident severity rate reduced to 36 per cent of its original value.

What are the safety devices and procedures which have accomplished these results in our Distant Plants?

One of our favorite devices is the safety contest. The contest is serviceable in creating the proper feeling and attitude in the employees. The contest develops that group emotional state in which each man in the mill feels himself participating in a big worthwhile campaign. The contest itself does not produce lasting results. Emotional states quickly wear out. However, with employees stimulated by the contest, the safety director can build permanent safety foundations.

Our contests are not forced affairs. The contest is not put on until some mill or department is anxious for it. Contests are arranged only on request. Usually the contest is suggested by some department or mill that feels pretty strong in safety, and is looking for a fight with some other department or mill.

The fact that mills participating in a contest are many miles apart is no handicap. We maintain interest in safety in distant plants by a rather elaborate system of bulletins. These bulletins bring each mill in close contact with other mills. Early in our safety experience we found that it was necessary to have some definite information as to progress made in safety work, and as to the results obtained from specific action taken. Adequate information on safety progress in all units of the company is the key to keeping safety at work in distant plants.

Weekly Safety Bulletins

We first had a weekly bulletin. This bulletin merely gave information on the number of accidents in the different mills each week. We have constantly added to the information contained in the bulletin so that it now shows the names of all departments, the foreman of the department, the number of employees in each department, the frequency of accidents, the days lost from each accident, and the cause of each accident.

These bulletins are posted in each department every Monday morning. Each superintendent receives one. Bulletins are exchanged between all plants in the company and a bulletin from each plant comes to the central office each week.

When the contest is at its height we frequently use the telegram broadcast the standings of the competing mills. A typical telegram reads thus: "Niagara had an accident, Alfred Gercu, construction laborer, while getting off truck wrenched knee, lost one day, Tuesday, June eighth."

At this point I would like to ask two questions. Why is it that mill managers, mill owners, insurance companies, doctors, and social workers were the originators of safety campaigns when they were not the people who were getting hurt? Why is it that the workmen who lose their eyes, their hands, and their lives seem to be least concerned about accident prevention?

We think that the answer is this: The mill manager, mill owner, insurance company, and the doctor are so situated that they see accidents in the mass. The individual worker personnally comes in contact with few accidents. We have found that the greatest single factor in reducing accidents is to give to the average worker the mass-view-point of accidents. When he sees accidents not only as an industrial problem but also as a personal problem it is surprising how soon he becomes interested in safety work.

One Hundred Year Safety Man Award

One of our most effective safety devices we call the "One Hundred Year Safety Man Award". During the last five years this device has been used with success in all our mills, and with especially great success in our distant mills.

The essence of the "One Hundred Year Safety Man Award" is this: By working safely a certain number of man days, every man in a department from superintendent to sweeper receives a brand new five dollar bill.

To illustrate: There are 310 working days in one year. One hundred men working one year would work a total of 31,000 man

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* Delivered at Annual Meeting of Pulp and Paper Section of National Safety Council, Waldorf-Astoria, New York.

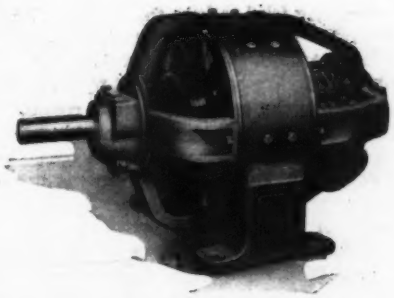
[1] Staff Superintendent of Service, Kimberly-Clark Corp., Neenah, Wis.

These are the motors for super-calender drive

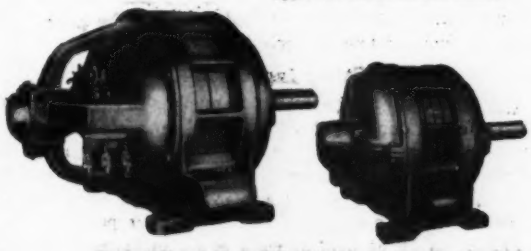
Close speed adjustment over a wide range is the primary requisite in super-calender drive. Where direct current is available, the Type CD motor completely fulfills the exacting requirements; for alternating current, two motors of the required size, Types MT and KT, meet every demand.

Extreme simplicity, superior insulation, push-button control, and, above all, ideal operating characteristics make these motors the most satisfactory drive you can have. Design and construction based on years of experience are your assurance of reliable, economical service.

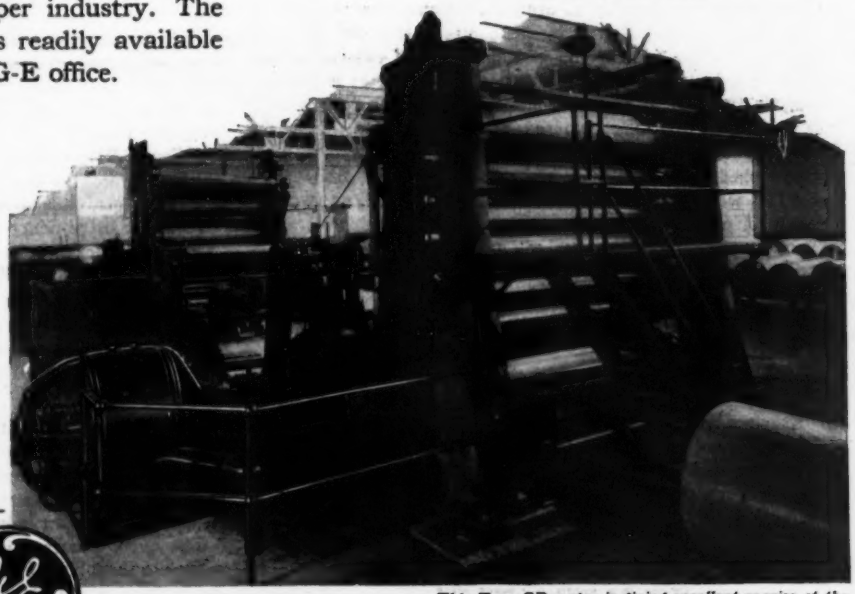
General Electric supplies complete electric equipment for the paper industry. The advice of specialists is readily available through your nearest G-E office.



Type CD direct-current motor



Type MT and Type KT induction motors for two-motor alternating-current drive



This Type CD motor is giving excellent service at the Mead Pulp and Paper Co., Chillicothe, Ohio

Apply the proper G-E motor and the correct G-E controller to a specific task, following the recommendations of G-E specialists in electric drive, and you have G-E Motorized Power. Built in or otherwise connected to all types of industrial machines, G-E Motorized Power provides lasting assurance that you have purchased the best.

Motorized Power
—fitted to every need

231-18

GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y., SALES OFFICES IN PRINCIPAL CITIES

days or 100 man years. The five dollar award is made when the "Safety Man" in the department is 100 years old. For instance, a department of 100 men working safely one year, or a department of 50 men working safely two years, or a department of 200 men working safely one-half year would receive the award. Deductions are made from the age of the "Safety Man" for accidents and for days lost.

We have tried to keep this "Safety Man" award from entering the ranks of commonplace things by making a great deal of it. We close down the department for five or ten minutes to make the award. We have an official of the company speak briefly congratulating the men on their fine record.

We make no secret of the fact that safety means profit for the company as well as profit for the men. We explain to the men that by working safely they help us to carry our compensation insurance. Five hundred dollars is a low premium to pay on the safety of 100 men for one year.

A certain construction crew at one of our distant mills affords a good illustration of the effectiveness of this plan. In the days before the plan was adopted this crew had many accidents. After the plan was adopted this crew made the then unheard-of record of going four calendar years and receiving the prize four consecutive times without a single accident.

Safety Suggestion System

Our safety suggestion system is another device which helps to keep safety at our distant mills. Excellent safety suggestions have been made by employees. A man whose suggestion is adopted acquires the sense of company citizenship. He feels that he is a part of the company as a whole even though he is employed in a plant which is a thousand miles from other plants.

Safety cannot be kept at work either in outlying or in nearby mills without the intelligent cooperation of the foreman. It is not the foremen's function to arouse emotional interest in accident elimination—that is done by the contest. It it not the foremen's function to educate the workman in the causes and results of accidents—that is done by the bulletins. It is not the foremen's function to give a monetary reward for safe work—that is done by the One Hundred Year Safety Man. It is the foremen's function to unite safety and work. Safety must not be looked upon as a thing separate from work. Safety is a method of working, a method which in the last analysis is under the control of the foremen.

Squarely Up To Foreman

We put the safety responsibility squarely up to the foreman, especially to the foremen in distant plants. These foremen feel that accidents are their own fault. We do everything to encourage that feeling.

I have touched upon here only those safety devices and procedures which in our experience seems to have been successful in "Keeping Safety At Work In Distant Plants." I have not mentioned our methods of introducing the new man to the job, and training him in safety ways. These things and all the other orthodox elements of personnel administration obviously do their part in "Keeping Safety At Work In Distant Plants."

Brotherhood Elects Officers

[FROM OUR REGULAR CORRESPONDENT]

FORT EDWARD, N. Y., March 18, 1929.—At the 13th biennial convention of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers held in the Mount Royal Hotel in Montreal, Canada, the following officers were elected for the next two years: John Burke, of Fort Edward, president; vice presidents, Maurice le Belle, of Ottawa, Canada; H. W. Sullivan, of Worcester, Mass.; J. W. Taylor, of Topsham, Me.; William H. Burnell, of Espanola, Canada; Reinhart Henke, Wisconsin Rapids, Wis., and A. C. Krueger, of International Falls, Canada; treasurer, Bat Doody, of Palmer; auditor, George Brooks, of Franklin, N. H. Mr. Burke was elected president in 1917 and has held office since.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 18, 1929.—James F. Paul, secretary of the Boston Credit Men's Association, spoke on Interchange of Credit at the meeting of the New England Paper Merchants' Association at the Harvard Club of Boston, Thursday evening. President Arthur E. Ham was in the chair. Reports were made by the officers and representatives of the association who attended the recent convention of the National Paper Trade Association of the United States, held in New York City. One new member was elected. There was a good attendance.

At a meeting of the Fort Hill Paper Company, F. Bendel Tracy was elected president and John E. Roach vice-president.

Carter, Rice & Co. Corporation is issuing an announcement to its customers, welcoming them to inspect the new office, warehouse and shipping facilities at 250 Devonshire street. The announcement, with the caption, "Efficient Service," notes startling innovations, including modern time-saving methods. In the well appointed sales room is a force of thoroughly experienced salesmen, who are advisers and counselors on paper and its uses. The customers' service room, adjoining the main office, is now ready. The stock floors have up-to-the-minute equipment for speeding up the handling of orders and guarding against damage in storage and delivery. A new type of conveying chute carries orders almost instantaneously to the shipping department from the time of their discharge at each loading point. The "ferry slip" style of loading platform still further increases the efficiency of the shipping department by allowing a direct transfer of goods from the shipping room to the delivery truck fleet.

At a sales meeting of Carter, Rice & Co Corporation, the new price book was received enthusiastically by the salesmen, particularly because it contains a list of all the lines carried by the company and those of the C. A. Esty Paper Company, now merged with Carter, Rice & Co. The book contains almost 300 pages, 225 of which cover the regular lines. The balance is made up of two separate sections, comprising the complete Strathmore lines and the American Writing Paper Company lines. The main part of the book is devoted to lines actually carried in stock. Those available from both the former C. A. Esty Paper Company and the Carter Rice Company are cross-indexed. An innovation is a section devoted to specialties, covering wrapping paper, manilas, glassine paper, tissues, tape moisteners and padding cements. Envelopes are listed under flat stock.

Frank Roche, representing the Associate Mills, Holyoke, Mass., was speaker at the sales meeting of John Carter & Co., Inc., Saturday, referring especially to Certificate Bond and International Cover.

Ellsworth W. Cowles, of the New Haven Pulp and Board Company, New Haven, Conn., called on the trade last week.

Kalbfleisch Celebrates 100th Anniversary

Few names have been continuously associated with one industry for a century. There is unusual interest in consequence attached to the 100th anniversary of the date when the name of Kalbfleisch was first linked with the manufacture of chemicals.

The event occurred in March, 1829, when Martin Kalbfleisch moved to the United States from Holland and established a chemical manufacturing plant in Harlem. From that day to this the name of Kalbfleisch has been associated with the chemical industry.

The chemical industry of today is a giant, but its present huge proportions were only reached through struggle and vicissitude, in which Kalbfleisch shared. And Kalbfleisch also played an important role by contributing to the winning of the wars in which America has engaged in the past ten decades.

This anniversary therefore signalizes 100 years of achievement. Recognition of this milestone in Kalbfleisch history and progress took the form of a dinner on March 20, at which the directors, officers, employees and sales representatives of the Kalbfleisch Corporation were present.

21% increase in daily production

THIS is the report of a mill operating ten machines equipped with Penberthy Drier Fittings. Before the installation of this equipment, the average daily production was 94,393 pounds, while at the present time it is 115,038 pounds. The grade and weight of paper remains the same, and no other changes were made in the machines. ¶ But the improvement was not only in production. The graduated drier temperatures resulting from the Penberthy Drier Equipment secured a finished sheet with a uniform moisture content and no paper has been returned due to incorrect drying. ¶ Penberthy Drier Equipment is saving steam, reducing steam pressures, eliminating cockles, minimizing snap-offs, and increasing production on all grades of paper.

PENBERTHY PRODUCTS

Write for data regarding the application of Penberthy Drier Equipment to your machines

PENBERTHY INJECTOR COMPANY

Established in 1886 DETROIT *Canadian Plant: Windsor, Ont.*

PENBERTHY DRIER EQUIPMENT

Forest Research in the Paper Industry

By Henry I. Baldwin, Brown Co., Berlin, N. H.

In speaking of research today one almost runs in danger of using a hackneyed term, so common has this word become. It is used in more and more fields where truth is being sought, and attempts are being made to replace ignorance by knowledge. Thus every organization and branch of learning must have research—searching for causes and facts—in order that it may progress. It follows that if one does not believe in research he does not believe in progress.

Forestry, like engineering or medicine, is largely an applied science. Its development is based on fundamental knowledge of the natural sciences supplemented by long, painstaking investigations. Forestry is not spectacular; it is not revolutionized by great discoveries and given wide publicity. Hence the pioneer foresters remain largely unknown today, and if it is difficult to say what person first discovered vitamines, it is even harder to attribute particular "forestry discoveries" to separate men. Thus we have Cotta and Hartig, raising forestry to the level of a profession and science; Brandis and Fernow extending it to new lands; Pressler, Metzger, and Jonson demonstrating that mathematical as well as biological laws apply to forests; yet all active also in other lines of investigation. Cieslar in Austria, Engler in Switzerland, and Schotte in Sweden laid the foundations for the study of forest genetics. Then we have Mayr., Hesselman and Illvessalo seeking for causes of tree growth in the forest soil, and skilled silviculturists like Gurnaud, Heyer, Huffel, Boilley, Eberhardt, Wagner, Mundt and many others putting into application the findings of the pure investigators, and amplifying their knowledge.

Forest research in the United States has made great strides during the last quarter century, but then it started with practically a blank. We still know very little about the processes controlling the reproduction and growth of our important forest types. Much, however, has been learned. If we consider the whole country, perhaps the outstanding forest investigations in the field of silviculture have been Pearson's "Natural Reproduction of Western Yellow Pine in the Southwest", Hoffman's "Natural Regeneration of Douglas Fir in the Pacific Northwest" and Bates' "Forest Types in the Central Rocky Mountains as Affected by Climate and Soil". Basic forest research of the highest order has been and is being done under Prof. Fisher on the Harvard Forest, and Prof. Toumey at Yale, as well as in other institutions of learning and at the various government forest experiment stations. During this time we have seen many experiments tried and lessons learned in the pulpwood forests of New England and Eastern Canada, even if many of the results are negative. Blind application of diameter-limit cuttings to our virgin spruce forests has proved a failure; on flats and pure softwood types the remaining trees invariably blow down, following the heavy cutting, and on hardwood lands, where some such system might be adaptable, the early cuttings consisted more in the progressive removal of all merchantable timber in several cuts rather than in a permanent form of selection management. Recent investigations point to the fact that natural spruce reproduction consists almost wholly of advance growth, which is present on the ground before cutting, and that leaving of seed trees for securing reproduction following cutting is not only futile, but in many cases unnecessary. In spruce forests reproduction must be secured before the final removal of the stand, if at all. Just how, has not been worked out. Yield studies have shown that in normally stocked stands of second growth, red spruce may produce up to 70 cords per acre at 75 years, but we are still largely groping in the dark as to the best methods of growing it. Our knowledge of the yields and behavior of other species in our northern forest, with the exception of white pine, is even more fragmentary. Some may be much more important in the future than we now dream. The extraordinary susceptibility of young seedlings to heat and dryness has been shown, but much remains to be done to enable us intelligently to avoid losses from this source, when dealing with both natural and artificial reproduction. In other words, knowledge of applied silviculture is still very deficient.

In the field of forest products there has been no less achievement. Tiemann's work on the kiln-drying of lumber has been monumental and truly world-wide in its importance and application. Numerous other examples could be given; during the last 25 years hundreds of new products from wood pulp have been commercially developed, such as paper towels, artificial silk, and fibre roofing.

Forest entomology and forest pathology have each received much attention, and many thorough investigations have been made, to name the white pine blister rust as a single example.

If we grant that research is the foundation of progress and that forest research is the basis and fountain head of the knowledge of forests, we may then inquire what the function of the wood-using industries, and more specifically the paper and pulp industry is in the forest research program. It may seem at first thought that forest research should be a function of the government exclusively. In the case of agricultural research this is largely true; agricultural experiment stations are supported by appropriations of over ten million dollars annually, and the individual unit, the farm, is too small to support experiments of its own. In the case of forestry, we have forest experiment stations receiving less than $200,000 a year, and attempting to cover all our extremely varied forest types and regions. Additional government activity is essential and desired by every forest owner, but the need is so great, and the field so boundless, that every agency possible must be enlisted to aid in solving our diversified problems.

In this connection it is well to recognize, if we can distinguish them, two different types of problems in forest research, one the basic fundamental research which goes deeply into the factors underlying tree growth in general and searches for causes, the other calling for immediate solutions to meet present day needs or needs of the near future. The first class of problem belongs to the realm of the forest experiment station and forest school and those institutions equipped for work in pure science, the second type to all forest owners and practicing foresters as well. All should cooperate and add their observations to the accumulations of our knowledge. The extraordinary variations encountered in forests make local studies necessary. It is apparent that the larger forest owners, such as pulp and paper companies, are especially well situated to engage in such work and are forced to do so by circumstances. The many agencies carrying on chemical and physical research have not prevented large corporations from initiating investigations of their own problems, and the same is becoming true of forestry. One lumber company in Finland maintains over 900 sample plots in its forests for studying the effect of various forms of treatment on growth and yield. In Canada and the United States many paper companies have been among the first to experiment with plantations and different methods of cutting.

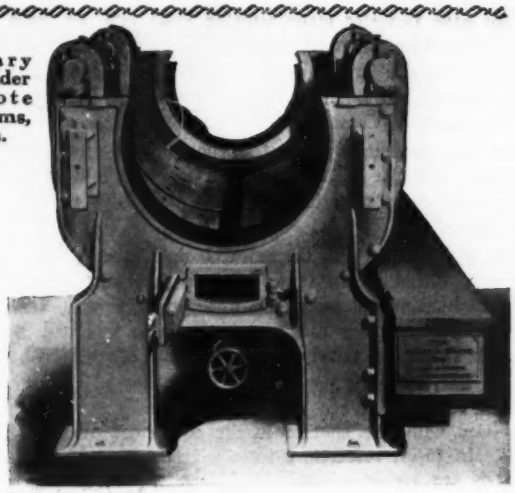
To the practical business man and manufacturer research is used to connote more of the "theoretical" and "impractical". But as Prof. Germann* has pointed out, we must remember that before

* Read before the New Hampshire Academy of Science at Concord, N. H.

"M & W" Rotary Screen

with important new features

View of Rotary Screen with cylinder removed. Note divided diaphragms, large openings.



The "M & W" Rotary Screen now being placed on the market has been redesigned and built from practical paper mill experience. Recent improvements are fully covered by United States and Foreign Patents.

Divided Diaphragms. Each diaphragm is divided into two sections, which move in opposite directions. The resulting balanced movement avoids all side strain on the cylinder, requires less power, and increases the screening capacity.

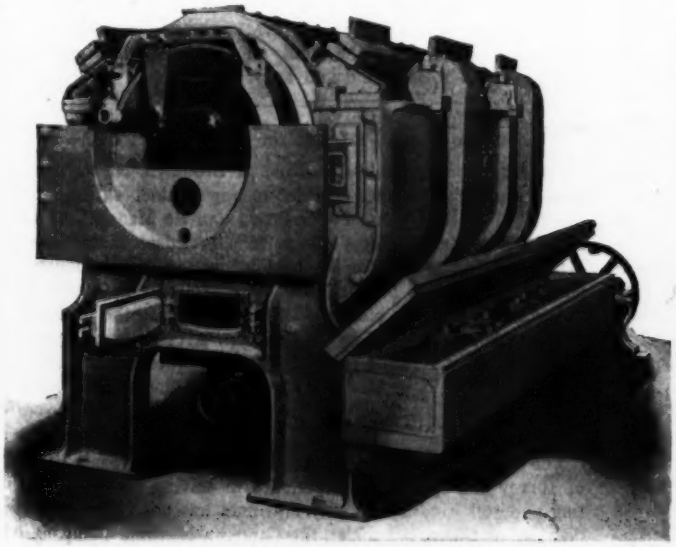
Discharge Openings at both ends of cylinder are much larger.

No Dead Stock in Cylinder. Improved discharge of stock from both ends of cylinder to flow box.

No Dead Stock in Vat. Pockets are prevented by diaphragm action and automatic flushing outlet.

No Packing Troubles. It is impossible for lumps *to get into screened stock.*

Note enclosed and accessible main drive, showerpipe, washout door for cleaning.



Self-Oiling Bearings. Shaft bearings and eccentrics are self-oiling, enclosed and protected from water.

New Shower Pipe—the Moore & White "Criss Cross" pipe that clears the screen plates so effectively.

Increased Capacity — Less Power — Reliable Operation at Low Cost

THE MOORE & WHITE CO.
PHILADELPHIA, PA.
N. PHILA. STA. PENNA. R.R.
PAPER MILL MACHINERY

WRITE FOR NEW SCREEN BOOKLET

we can have factories manufacturing radio sets, we must have Marconi working patiently for many years for very low wages, or before we can have tungsten lamps, some laboratory worker must discover and isolate tungsten. Dr. R. K. Duncan says in his "Chemistry of Commerce":[2]

"The achievements of 'pure' science in one generation constitute the formulae of the 'applied' science of the next, and outside altogether of material application they have their absolute justification."

The only trouble with the research man then is that he is a generation ahead of the times. But in rare instances only can new and fundamental facts be worked out in time to serve sudden emergencies; they can be met better if a broad basis of scientific facts and principles has already been established.

What has been said here applies more especially to the exact physical sciences. When research was shown to pay, corporations vied with one another in the equipment of their laboratories. In forest research, especially in the case of silvicultural research, we are in a somewhat different position. Instead of being able to secure large savings or increased earnings for the company immediately, our studies very often lead to increased outlay. The justification for this apparently extravagant policy is that reliable information on the management of our forests cannot be made available until the need becomes critical. The results of planting experiments now may not become finally apparent for 40 or 50 years. Later on mistakes on a large scale will be disastrous. A start must be made now if we are to have the information when needed. Furthermore, in the case of corporations with bonded indebtedness, assurance of future raw materials considerably strengthens their financial position, and means much to their credit and prestige.

The ultimate problem confronting all wood-using industries, in greater or lesser degree, is that of securing a continuous future supply of desirable species, or of making their present supplies perpetual by careful regulation, regeneration and growth. The justly prominent position which forest fire protection has played in forestry propaganda had led many to believe it all that is necessary. Such a view is held by many landowners in Maine, who point to the fact that their lands have always "come back" after cutting, overlooking the fact that each cutting leaves less behind than the preceding. A glance at any of our cutover and waste lands will convince the most optimistic that such a procedure will not give us sustained yield in a regulated annual supply. One might as well expect a farmer to have his annual crop "come back" year after year without other care than keeping out the cattle. As Mr. S. T. Dana recently pointed out[3], fire protection and just tax laws are all well in themselves, and must be secured of course, but they are not enough. "Admirable though they are, they merely give nature and the forest owner a fair chance."

The manager of pulpwood forests must have information whereby he can decide what species should be favored—a decision based on a study of the economic and silvical characteristics of the species, and a study of yields; (perhaps some of our so-called weed-species have future possibilities). He must investigate the economic possibilities of thinnings. In the future he may be able to obtain the greater part of his pulpwood in this manner, reserving the matured stand for sawtimber. He must experiment with planting to develop economic methods of putting back into production his burned and barren lands; and with methods of cutting to insure fully stocked stands of natural regrowth.

[1] German, F.E.E.: Cooperation in Research, Science, N. S. 63:326, 1926.
[2] Harper & Bros., New York, 1907.
[3] The Mission of Forest Research. Proceedings of 2nd New England Forestry Congress. 1926.
[4] Jour. For. 24:236, 1926.
[5] Fernow, B. E.: Economics of Forestry, Thomas Y. Crowell & Co., N. Y., 1902, p. 163.

With the object of securing forests to produce pulpwood, the forester must not lose sight of other things the forest may produce at the same time. The two great lines which should direct the operations of a forest manager for a large corporation should be: first, coordination of forest industry; second, and depending upon the first, the interrelation of silviculture and utilization, to use Clapp's term.[4]

The first has been most highly developed in Sweden where it is considered wasteful and poor economy to operate a sawmill without a pulpmill to use the waste, or to have a pulpmill without a sawmill to saw the better quality logs and those of species not suited for pulp. So far we have had but a few isolated instances of this in America, such as the Bogalusa, La., and Cloquet, Minn., developments. Such an upbuilding of related industries will do much to further forestry in New England.

The corollary to this is that the forester must guide his cuttings by seeking markets for the trees he would be rid of, and conversely by finding what the consumer wants. Just as the agriculturist goes to the markets and finds out what crops are demanded and then returns to grow that kind of potatoes or beans, so the forester must more and more go into the sawmill, into the lumber yard, into the pulpmill, and determine what grades, what sizes, and what species are most in demand, and then go to the woods and see that such trees are being produced. If it is essential to have a 16-ft. log instead of a 12-ft. log free from knots, it may radically change the grade of thinning which the stand is to receive. But here the forester's problem is different from the farmer's in that rotations are long with forest crops and markets may change. This is indeed an element of uncertainty; yet we feel justified in making the following statement: If we strive to produce the best that is demanded to-day, we shall not fall short of the demands of to-morrow, for the high standards of quality which a lumberman is used to now are based on the results of mining trees from virgin forests, which it has taken 200 to 300 years to produce. It will not be practicable to maintain such standards from second growth forests.

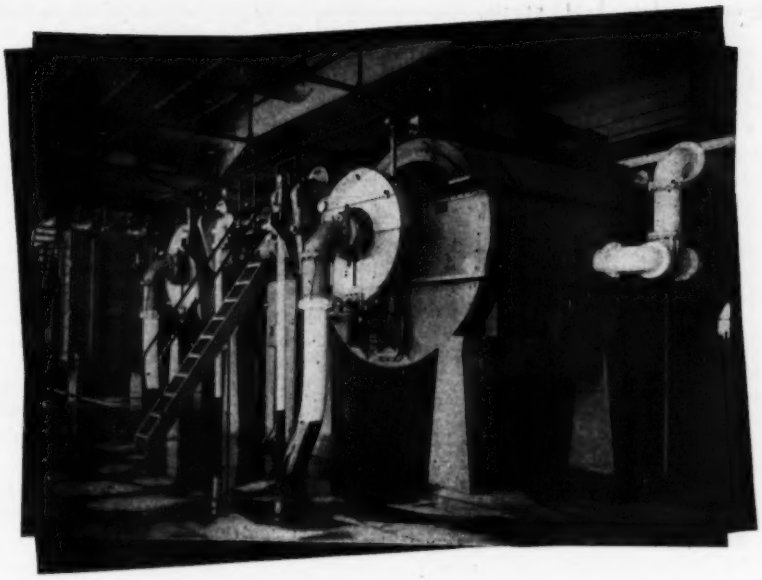
The development of the science of forestry and its application to the management of forests must go on simultaneously. Almost at the dawn of American forestry Dr. Fernow[5] wrote:

"The forest grows under recognizable laws just as the single tree does." It is for us to learn these laws. The forests stand calling to us, and saying, "Come and learn our secrets," and man in his crude blind way is trying to apply his yard stick to the forest and finding out how best it can serve his purposes, first destroying it, then mining it for its products, and finally tending it that it may go on growing forever, providing material for his wants and shelter from the wind, an abode for birds and game, and recreation to his mind and body.

Low Cost Production of Better Rolls

The Cameron Machine Company, of Brooklyn, N. Y., has just issued another new and very interesting booklet entitled "How Good Rolls of Paper and Paper Board Can Be Made at the Least Expense," written by James A. Cameron, president of the Cameron Machine Company, who needs no introduction to the industry as an authority on the production of paper rolls of the better kind. It is another valuable piece of literature added to the illuminating series of booklets issued by that concern stressing the importance of cutting and producing perfect paper and paper board rolls. Mr. Cameron also tells in his book how this significant factor of production can be accomplished at minimum expense and inconvenience.

The subjects discussed in this booklet are the result of years of survey and specialized experience in solving problems of slitting and roll winding. If any mill man has not already received his copy of this new booklet, the Cameron Machine Company will cheerfully send one upon request.



Saving $5,000,000 *Annually*·
With an Original Expenditure of $3,000,000.
. . . *that's good business*

MANY paper and pulp mills in the States and Canada have taken steps to prevent fiber losses.

Their initial investments in equipment plus annual operating costs totalled approximately $3,000,000.

Their annual savings run to some $5,260,000.

In the majority of these plants the equipment selected was the Save-all or combination Save-all deckers manufactured by Oliver United.

The main reason why Oliver United units are selected is because they save 90% or more of the fibers, because they have the capacity, because operating costs are low.

Installing Oliver United fiber saving equipment is good business.

• Profit and Loss in Fiber Utilization by T. M. Baker, Engineer, American Pulp & Paper Association. Paper Trade Journal Sept. 20, 1928.

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Successors to Oliver Continuous Filter Co., and United Filters Corporation

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New York Trade Jottings

R. T. Houk, Jr., of the G. H. Mead Company, of Dayton, Ohio, was a New York visitor early this week

* * *

The Strathmore Paper Company entertained twenty members of the Graphic Arts Alumni of New York at their Woronoco mill last week.

* * *

The St. Regis Paper Company has declared regular quarterly dividends of 75 cents on the common and $1.75 on the preferred, both payable April 1 to stock of record March 15.

* * *

The R. T. Vanderbilt Company, Inc., are now located in their new quarters at the New York Central Building, 230 Park Avenue. The telephone number remains unchanged, i. e., Vanderbilt 6864.

* * *

Major O. M. Porter, secretary of the American Paper and Pulp Association, sailed from New York last week for Savannah, Ga., accompanied by his wife. Major Porter is enjoying a well earned rest after his strenuous duties at the recent paper and pulp convention.

* * *

Henry Kurniker, of Schorsch & Co., New York, has recently returned from a two-weeks vacation in his old home in Columbus, Ga. On his way north he stopped over a day in Atlanta and visited some old friends, among them Arthur Harris and Louis H. Moss, of the Atlanta Paper Company.

* * *

The Du Pont Cellophane Company of 2 Park Avenue, New York, announces that Eugene F. Wilson has been assigned to a territory in the Manhattan area where he will assist manufacturers in their packaging and merchandising problems. A. E. Robinson, who formerly represented the company in Brooklyn, will now cover Manhattan below 23rd Street. L. C. Price will take over the Brooklyn territory immediately.

* * *

At the annual meeting of the Johns-Manville Corporation, New York, W. R. Seigle was elected chairman of the board of directors in place of H. E. Manville, who resigned to become chairman of the executive committee. Lewis H. Brown was elected president and a director, succeeding Theodore F. Merseles, deceased. S. A. Williams was elected vice president in charge of factories and mines and E. M. Voorhees was elected secretary in addition to his present position of treasurer.

* * *

Schorsch & Co., manufacturers of paper bags and sacks, have taken a long lease on two large floors of the factory building located at the corner of Brook Avenue and 134th street, which is one block from their present large factory at the corner of Brook Avenue and 133rd street. Schorsch & Co. own a vacant space 100x150 feet adjoining their present factory, and are contemplating the erection of an eight-story factory building to give them greater facilities for their constantly growing paper bag, sack and specialty manufacturing business.

* * *

Custom houses at ports of entry are beginning to feel the first effects of the tariff agitation that has been going on since the first of the year. Importers who fear an advance in duty are bringing in increased quantities of merchandise and storing the goods here. At the New York Appraiser's Stores it was stated that the volume of incoming merchandise at present is between 10 per cent and 15 per cent greater than a year ago and this is attributed almost entirely to the tariff situation. As the tariff hearings proceed in Washington and it becomes more and more evident that changes in the rates are going to be made, this increase in shipments from abroad is going to grow, it was explained, until just before a new tariff becomes law, when there will be a grand rush to get goods in at the prevailing, rather than the new rates. This of course, is upon the assumption that rates are going to be higher with respect to many lines of goods.

* * *

Chief Justice Fischer has just written an opinion in a reappraisement case involving the valuation of wrapping paper, imported by the Republic Bag and Paper Company. "The evidence establishes that the paper in question," the Chief Justice writes, "is manufactured in jumbo rolls for the American market. It therefore has no home market value. Moreover, jumbo rolls of this paper are used in making bags by machinery, a method pursued only in this country." Continuing, Judge Fischer states: "There are two purchasers of this class of paper in the United States, these appellants and the firm of Wilkinson Bros., and each pays the same price for identical paper. I have heretofore sustained other entries of these two concerns and I believe that the present record warrants again sustaining the entered values, which I now do."

File Supplemental Brief on China Clay

WASHINGTON, D. C., March 20, 1929.—Answering importers of English clays who are opposing increased duties on Kaolin or China Clay from $2.50 to $3.75 per ton, domestic clay producers through the American Mining Congress filed a supplemental brief with the House Committee on Ways and Means in the tariff revision hearings showing that with this increased protection they can supply every requirement of the American market. The brief which was submitted by M. W. Kriegh, chief of the mineral tariff division of the American Mining Congress, shows that contrary to contentions of importers, domestic clays can be and are being used for filling and coating purposes in the manufacture of the highest grades of book, magazine and writing papers, and that representative paper manufacturers in the Middle West are using domestic clays exclusively, and competing successfully with manufacturers using English clay.

The brief of the American Mining Congress also shows the marked improvements in the domestic clay industry that have been accomplished notwithstanding the inadequate protection given in the Tariff Act of 1922, and the fact that English clay producers have continued to enjoy and dominate practically one-half the American market.

The brief points out the advantages of the increased protection asked in the additional number of employes that will be engaged in the domestic industry and the further prosperity that will accrue to North and South Carolina, Georgia, Florida and other Southern States in which clay production will be expanded.

Tait Paper & Color Industries Change Name

GLENS FALLS, N. Y., March 19, 1929.—Vote of the stockholders of the Tait Paper and Color Industries, Inc., at the annual organization meeting resulted in the decision to change the name of the firm to the "Imperial Paper and Color Corp." The corporation is now recognized as the largest of its kind in this country with controlling interests in large wall paper mills in this city, pulp and paper mills at Hackensack, N. J., and a large distributing branch and warehouse at Chicago. It was learned that the action of the stockholders was based on the belief that a new name would have a greater trade value. The Imperial Wall Paper Company of this city was the original unit of the organization but later wall paper printing plants at Plattsburg and Hackensack were acquired making it one of the largest in the world. During the war when German shipments to this country were halted the Imperial Color Works was founded by the local organization and it was soon recognized as one of the most important branches. Louis M. Brown, of this city, was recently elected president of the firm to succeed George Tait.

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Vol. LXXXVII New York, March 21, 1929 No. 12

THE NEWS PRINT INVITATION

Apparently there are to be no more announcements in regard to the news print price agreement beyond those officially made in the United States by the International Paper Company and in Canada by Premier Taschereau's statement in the Quebec Legislature. From now on the policy of "sawing wood" will prevail until happier times are ushered in. The agreement entered into has so many delicate angles that the less it is aired in public the greater will be chances of applying it without friction.

It must be remembered that a cardinal feature of the agreement is the distribution of the business offering on a pro rata basis; that is to say, on a basis in direct proportion to the capacity of each mill. That may seem easy on paper, but it is going to demand a good deal of wisdom, a good deal of diplomacy, some self-sacrifice, and a whole lot of the spirit of co-operation to apply it on a practical basis.

For instance, there are the individual requirements of customers to be considered. A publisher who has been dealing with a particular mill for years may find paper coming now from two or even more mills, and each of these will have to respond to his individual requirements both as to delivery and products. Then again, some mills which have been running at capacity will have to slow down to the general level. Others which have been running below the general level will have to step up. Another complication comes from expansion. Mills which are adding new machines may be expected to demand the average output for these. If that difficulty is safely overcome, who is to say whether any mill shall, or shall not, plan further extensions; and if further extensions are made, will they have the right to demand business for these extensions?

Still another difficulty will come from new mills now actually being constructed. How are they to be cared for when they come into operation? If consumption does not increase, will the existing mills consent to cut down production still further? And if they do not, will the price war break out again?

The hope is that the scale of operations will not drop below 75 per cent of capacity. The present scale is about 80 per cent. If, in spite of new machines for existing plants, and new mills coming into operation, this scale can be maintained, all may be well. But quite evidently much depends on whether or not consumption shows a marked growth.

While there is no official intimation to that effect, the general assumption is that the task of equitably distributing the tonnage will be undertaken by the newly-formed News Print Institute in Montreal, whose head is Percy B. Wilson. Mr. Wilson is capable and diplomatic and has the confidence of the executives of the different companies. He is a former president of the Canadian Pulp and Paper Association. Should any difficulties arise, it is understood that these will be arbitrated by a committee composed of the Premiers of Ontario and Quebec and George Montgomery, K.C., a well-known corporation lawyer of Montreal and a director of several powerful industrial concerns.

Some hope is held out by the Canadian financial papers that despite the fact that prices are based on the five-year contracts made by the International Paper Company with its customers, prices may be higher in 1930 than they will be during the present year. It is stated that the new contracts provide that for 1930 and each succeeding year the seller shall by November 30 of each year give the buyer a written notice of the next year's price. The buyer may terminate the contract by written notice ten days after the receipt of the announcement of new prices. Hence, while prices at present are around the $55 a ton level—depending on the distance of the mill from the consumer—yet there exists a chance of some increase for 1930, depending, of course, on market demands.

TO EXCHANGE FORESTRY PROFESSORS

An exchange of professors in the field of forest utilization has been approved by the University of California and by Cornell University,—probably the first time an exchange of professors has been effected in an American school of forestry. The principals are Professors Emanuel Fritz and A. B. Recknagel. The former has been at the University of California since 1919, teaching wood technology and lumbering. Professor Recknagel has been at Cornell University since 1913 and is now teaching wood technology, forest utilization and forest management.

Professor Recknagel obtained his undergraduate degree from Yale College in 1904 and his master's degree from the Yale Forest School in 1906. Prior to taking up teaching at Cornell, he was a member of the staff of the U. S. Forest Service, first in the Southwestern District and until 1907, and then in the Washington office on timber sale work, later as chief of the section of timber reconnaissance. In December, 1908, he returned to the Southwest as Assistant District Forester, remaining until October, 1911, when he began a year of graduate study in Europe. Professor Recknagel is secretary of the Empire State Forest Products Association, and is the author of two texts—"The Theory and Practice of Working Plans," and, with J. Bentley and C. H. Guise, "Forest Management." Of popular books he has written "The Forests of New York State," and (with S. N. Spring) "Forestry," now in press.

Professor Fritz obtained his bachelor's degree in mechanical engineering at Cornell in 1908, after which he became an instructor in the Baltimore Polytechnic Institute, and was employed variously in the engineering departments of several steel companies.

He entered the Yale School of Forestry in 1912, graduating in 1914. Thereupon he joined the U. S. Forest Service and later entered military service, commanding an air service school squadron for one and one-half years. He is a member of the Editorial Board of the *Journal of Forestry*, and of the American Society of Mechanical Engineers. Both men are members of the Society of American Foresters.

Professor Recknagel comes to California for the fall semester of 1929, and Professor Fritz will be at Cornell for the spring semester of 1930.

TECHNICAL SECRETARY WANTED

The Technical Section of the Canadian Pulp and Paper Association, at its recent annual meeting, made provision for the employment of a technical secretary or service engineer to carry on the practical work of the section under the direction of the executive council.

The new officer, it is understood, will be attached to the Association's headquarters staff in Montreal. Among his functions will be that of acting as contact man between the Section's executive and the various mills, the supervision of experimental work carried on, on behalf on the Section and to apply himself generally to the advancement of the technical branch of the industry.

No choice has yet been made for filling the office, but the executive council is prepared to receive applications and suggestions, which should be addressed in the first instance to the Secretary, Edward Beck, 3420 University street, Montreal.

New High Output Records in February

The Canadian Hydro-Electric Corporation, Limited, a subsidiary of the International Paper and Power Company, produced 156,396,000 kilowatt hours of electric energy in February, 1929, eighty-five per cent greater than the output of the corporation in February, 1928. In the first two months of this year the output of the corporation was 329,091,000 kilowatt hours, an increase of ninety-three per cent over the production during the corresponding period of 1928.

Generators of a combined capacity of 45,000 horsepower will soon be started in the Bryson, Quebec, and Grand Falls, New Brunswick, plants of the corporation. The stations of Canadian Hydro-Electric Corporation will then have an installed capacity of 602,600 horsepower. An additional 20,000 horsepower in process of installation, will further increase the capacity.

The combined initial capacity of 224,000 horsepower, of the Paugan, Quebec, and Grand Falls, New Brunswick, plants of the corporation, started in 1928, represented 40 per cent of the total hydro-electric plant installation in Canada in 1928. The initial capacity of 204,000 horsepower of the Paugan plant was 65 per cent of all hydro-electric installations in the Province of Quebec last year.

First Sulphite Course Complete

Registration for the first instructional course in sulphite pulping which is to be given at the Forest Products Laboratory, Madison, Wis., March 25 to April 4, has been completed, and it has been necessary to transfer a number of applicants, whose enrollments came in too late, to the second course, April 29 to May 9.

The fifteen men now enrolled in the first course are from eleven companies. One concern is sending three superintendents, two have enrolled two men each and three companies are "repeat orders" from former courses.

Enrollments are now being received for the second course which is to be given April 29 to May 9. Registration for this class will also be limited to fifteen.

Better Rates on News Print for Northern New York

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., March 18, 1929.—The St. Regis Paper Company has won a victory in its fight of several years' duration before the Interstate Commerce Commission at Washington in order to obtain more equitable freight rates on news print, wrapping paper and paper bags from Northern New York to Chicago territory. The company claimed that existing rates to Chicago favored its competitors in the so-called Fox River group of mills in Wisconsin. William H. Smith, commission examiner, has ruled that present rates of 38.5 cents per hundred pounds on shipments are unreasonable but denies the company reparation for alleged past overcharges on shipments to the Chicago district.

The ruling affects virtually all of the paper mills in this section of Northern New York. Among those intervening on behalf of the paper mills in the controversy were the American Newspaper Publishers' Association and the Northern New York Development Organization. While the decision is intended to open the Chicago market to Northern New York paper mills it does likewise with markets in other Middle West cities as well as Pennsylvania to which destinations existing rates are also unreasonable, according to the examiner, whose report must be approved by the commission before becoming effective.

Joseph Quinlan, traffic manager of the St. Regis Paper Company, directed the fight for the up-state firm and is deserving of much of the credit for the victory. The principal feature of the decision and that for which the local manufacturers had striven is the recognition of Northern New York's position as concerns rates at present equal with those of Canada and Maine. The decision is considerable of a victory in that it places Northern New York in a rate making section by itself. The St. Regis Company sought no reparation on news print shipments but for bags and wrapping paper only.

Take Flashboards Case To U. S. Supreme Court

[FROM OUR REGULAR CORRESPONDENT]

COHOES, N. Y., March 18, 1929.—The Ford Motor Company has carried its fight with the Mohawk Paper Makers, Inc., of this city, to the United States Supreme Court in an effort to have the decision directing removal of flashboards near the plant in this city reversed. The flashboards were placed on the federal dam by the motor company several years ago. The case in which the appeal was taken was brought by receivers of the Mohawk Paper Makers who asserted that the obstructions deprived them of part of the water power used in their mills in this city and Waterford. In asking for review of the case counsel for the Ford interests declared that the flashboards were erected and maintained pursuant to a license from the Federal Power Commission granted in December, 1924. The Mohawk Paper Makers, and its predecessors, who for nearly a century have owned a dam in the Mohawk River near its confluence with the Hudson, declared that mere permission to erect flashboards did not make the motor firm the agent of the government to install them. The argument was sustained by the New York Court of Appeals which said that the Commission's license does not result in any development and improvement of navigation. "Its plain effect," the opinion stated, "is the removal of the prohibition of Congress against the placing of an obstruction in a navigable stream."

To Strengthen Lodge Membership at Holyoke

HOLYOKE, Mass., March 19, 1929.—Eagle Lodge Papermakers at their semi-monthly meeting Sunday were addressed by their President, John W. Bailey, who, in reporting on the Montreal convention, said that he was there informed that an organizer would be sent to Holyoke very soon to attempt to strengthen the lodge membership. It is not likely that the five day a week schedule will be asked for for some time. He told of a number of proposed laws by the brotherhood that are to be submitted to the various unions in the form of referenda soon. A new scale of wages calling for an advance of five cents an hour was favored but it is doubtful if it will be forced here for some time.

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of

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MARCH

1829-1929

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Section of the
Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Edited by
RONALD G. MACDONALD, Secretary

Proposed Method for Testing Casein*

By Elbert G. Milham [1]

In the case of ground casein in bags or barrels, 2½ per cent of the parcels in the lot are set aside for sampling. Each parcel set aside must be in undamaged and sound condition and should not vary in weight by more than 5 per cent from the weights marked on the outside of the packages. The sample is obtained by inserting an 18 inch sampler into the center of the sack or barrel, withdrawing it and retaining the material remaining in the "V." In case a sampler is not available, one can easily be made by riveting a handle to a piece of 1 inch angle iron 18 inches long.

In the case of unground casein in bulk, a quantity of material representing 5 per cent of the weight of the lot is taken from ten or more different places in the lot. This sample is ground to 20 mesh size or finer, thoroughly mixed, and the final sample drawn.

Moisture

Moisture is determined by weighing about 5 grams in a tared aluminum or porcelain evaporating dish and drying to constant weight at 98-102 degrees C. It is essential that the upper limit of temperature be not exceeded as casein is very easily scorched above 100 degrees C. Moisture should not run over 10 per cent

Ash

Ash is determined by igniting about two grams in a porcelain Rose crucible. The casein is burned gently until completely carbonized. The cover is then placed on the crucible and the material burned in a current of oxygen until all traces of carbon have been burned away. Ash content should not exceed 6 per cent.

Insoluble Material

Insoluble material is determined by weighing 100 grams of sample into a liter beater, adding 300 grams of distilled water and stirring thoroughly. After about 10 minutes' soaking, a solution, made up of 15 grams of soda ash in 100 grams distilled water is added, and the mixture stirred hard for 20 minutes or until it becomes too viscous for further stirring. It is placed in a water bath maintained at about 60 degrees C. and left there, with occasional stirring, for three hours. At the end of the dissolving period, 400 grams of boiling distilled water are poured onto the material in the beaker and the mixture stirred thoroughly for five minutes. It is then poured onto a small 200 mesh brass sieve which has been weighed to .1 milligram and soaked in boiling distilled water. The sieve and residue are washed *thoroughly* with boiling distilled water after which it is dried and weighed.

Strength

In determining strength, a solution of the casein is made by dissolving the equivalent of 50 grams of bone dry casein in 200 grams of distilled water and 7.5 grams of soda ash as described under "Insoluble Material." In this case, it is necessary to heat the casein only an hour. It is also necessary to correct for the water lost during heating by weighing the beaker and contents before and after heating and making up the loss in weight with warm distilled water. After the casein has been dissolved, a slurry is made by stirring 200 grams of bone dry English coating clay with 200 grams of cold distilled water. The slurry is weighed up in 6 portions of 50 grams each into 250 cc. beakers. The beakers are numbered consecutively from 8 to 15 and the following quantities of casein solution weighed in No. 8—10.3 grams; No. 9—11.6 grams; No. 10—12.9 grams; No. 11—14.2 grams; No. 12—15.4 grams; No. 13—16.7 grams; No. 14—18.1 grams; and No. 15—19.4 grams. If these quantities are used, the numbers of the beakers will correspond to the grams of bone dry casein per 100 grams of bone dry clay. The casein is stirred thoroughly into the clay and the mixture from each of the 8 beakers strained through a 75 mesh brass sieve into 8 similarly marked 250 cc. beakers. The eight coating solutions thus prepared are brushed out onto pieces of coating raw stock about 4 by 10 inches weighing about 25x38—50 pounds. The sheets, after drying, are calendered by holding them 1½ minutes in a jet of steam and immediately running them three times through a clothes wringer set up as tight as possible. After the calendered sheets have dried they are tested for coating fastness by means of an ink roller. The latter is a regular hand composition roll provided with a saddle to which is bolted a five pound weight which rides directly over the roll. The test sheet is clamped onto a metal plate in such a way that the ink roller may pass back and forth over the sheet without stopping on the paper. The ink roll is saturated with ink by passing it several times over a copper plate smeared with standard letter press ink. The inked roll is passed back and forth over the test sheet and the number of strokes noted before the first sign of picking appears. The pick ratio is computed by multiplying the number of strokes before picking by 100 and dividing by 12. A sheet having a pick ratio of 100 is considered suitable for ordinary printing. The strength ratio is computed as follows:

$$\text{Strength Ratio} = \frac{12 \times 100}{L}$$

where "L" is the lowest number on the above series of clay mixtures which would give a pick test

* This method is submitted to the Technical Association for consideration. Please send written comments and criticisms to TAPPI, 18 East 41st Street, New York, N. Y.

[1] Chief Chemist, Bryant Paper Company, Kalamazoo, Mich.

of 100 or more. A casein should not be considered as of first quality if it has a strength ratio of less than 95.

Spreading Quality

To determine spreading quality, the sample designated at "L" above is tested for viscosity in a standard Stormer viscosimeter at 70 degrees F. using a 100 gram weight. The spreading ratio is $\frac{300 \times 100}{V}$ where "V" is the viscosing reading. The Stormer viscosimeter may be obtained from the Central Scientific Company, Chicago, Illinois.

Fat

Fat is determined by extraction with ether in a soxhlet extractor using an alundum thimble. The fat content should not run over 1 per cent.

Plans for Mammoth Hydro-Electric Plant

[FROM OUR REGULAR CORRESPONDENT]

CONKLINGVILLE, N. Y., March 18, 1929.—Construction operations on the mammoth hydro-electric plant to be erected here by the New York Power and Light Corporation will be launched early in May, 1930, according to officials of the firm, who declared they will not enter actively into the Hudson River Regulating program until after the Conklingville dam has been completed and the first normal spring flood waters impounded. Authorities of the power corporation are skeptical as to the possibility of operations on the dam being completed by next fall which has been guaranteed by the contractors directing the work. In event this proves to be the case delay will consequently result in the corporation's extensive construction plans. Impounding of the waters of next winter and spring on the other hand will permit erection of the hydro-electric plant during 1930.

A new phase in the importance of the waterpower plant was pointed out when it was declared by officials of the corporation that it will run during low water periods thus replacing to an extent the necessity for emergency steam plants such as that operated by the firm on the Mohawk River near Amsterdam. Many Northern New York paper mills have also resorted to the use of auxiliary steam power plants during low water periods in the past and the construction of the new dam is also expected to do away with this necessity. While the Conklingville reservoir and dam is being constructed at a cost of $10,000,000, it is intended primarily to control the Hudson River and prevent flood conditions, the water impounded will also be available for power expansion purposes and many paper mills which are bearing the major portion of the cost of the project are planning to make use of the additional energy for operating purposes.

A B C of Hydrogen Ion Control

The fifth edition of the combination text-book and catalogue, "The A B C of Hydrogen Ion Control" has just been issued by the LaMotte Chemical Products Company, Baltimore, Md. This book holds a unique position for a trade catalogue as it is used as a text-book by a large number of colleges and universities. It is, however, written in such simple language that is can be readily understood by those having very little technical training.

The first seventy-six pages are given up to a simple discussion of the theory and meaning of pH control and its application to more than thirty different processes, including Pulp and Paper Manufacture, Water Purification and Softening, Boiler Water Treatment, Corrosion, Dyes and Pigments, Gelatin and Glue, Industrial Wastes and Soil Testing.

Under each application is given the equipment which is required for complete pH control in that industry. The remainder of the 132 pages is devoted to descriptions of Materials and Equipment for pH work and for the analysis of Water, Sewage and Industrial Wastes. Detailed instructions for the operation of all pieces of equipment are given.

A complimentary copy of this book may be obtained from the LaMotte Company on request.

Water Glass in the Paper Industry

SOLUBLE SILICATES IN INDUSTRY. James G. Vail. New York, Chemical Cat. Co., 1928. 443 pages. Price, $9.50.

Dr. Vail has given a thorough, systematic and authoritative discussion of the history, constitution, properties, preparation and industrial utilization of the soluble silicates and their solutions. The thirteen hundred references given in the footnotes attest to the detailed study of the literature and a desire to give credit to other chemists for their investigations and ideas and yet the book is not a systematic and complete collation of the literature, good, bad and indifferent. The book gives the impression that it is written primarily out of the author's own experience and knowledge.

The paper industry will be particularly interested in Chapter 8 on Adhesives and Chapter 9 on sizes and coatings. The use of water glass in the manufacture of asbestos paper, fiber board, corrugated paper and laminated board. Specifications and methods of manufacture are given.

"The following advantages of silicate sizing are pointed out: Good formation of the sheet and satisfactory removal of water by suction; no sticking on the press rolls, as a result of the above, increased life of the felts; quick and complete sedimentation of the white waters; increased retention of filling materials without sacrifice of strength; economy in coloring.

"The qualities imparted to the paper, though they vary according to the kind of stock and method of manipulation, may be summarized as follows: A small though definite increase in strength (this is of the order of 10 per cent); increase of rattle or snap of the paper; better feel—*i. e.*, a smoother surface free from protruding fiber ends; the combination of quick absorption of printer's ink with hardness which makes a clean impression for offset and other rapid printing processes; reduction of the tendency of cut sheets to curl.

"The kinds of paper in which silicates are being used include a wide range, but a few are listed with the principal advantages sought:

Bristol board—stiff smooth surface, generally with starch and rosin.
Kraft—increased strength and reduction of mechanical treatment to affect hydration.
Book—clay or talc retention without loss of strength.
Envelope—small amounts to improve finish.
Straw—denser, stiffer sheet, low cost.
Greaseproof—better hydration.
Glassine—same to increase transparency.
Writing—better finish and formation."

The book contains a complete author and subject index and is printed with the same care as are the other members of the American Chemical Monograph Series. Every paper manufacturer using water glass in any form certainly should have his book in his library.—CLARENCE J. WEST.

Nicolet Paper Co. Elects Officers

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., March 4, 1929.—Officers and directors elected at the recent annual meeting of the Nicolet Paper Company, De Pere, Wis., were: William C. Wing, Neenah, president; H. C. Hanke, vice president and general manager; E. J. Dempsey, Oshkosh, Wis., secretary; H. K. Babcock, Neenah, Wis., treasurer, and C. B. Clark, Neenah, Wis., Paul Bushong, Gladstone, Mich., and M. Smith, Menasha, Wis., directors.

Paper Price Index for February

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C. March 20, 1929.—Wholesale price index number for February for the paper and pulp industry was 87.8 compared with the same for January and 90.9 for February of last year taking 1926 at 100 according to the Department of Commerce.

Report of Paper Testing Committee

By B. W. Scribner,[1] Chairman

Two additional official methods proposed by the committee were adopted. These are determination of gloss and opacity. The total number of completed methods is now 26. A method for determination of bulk has been formulated and submitted for the vote of the Association.

The following development work is being done in subcommittees:

Ink Resistance of Printing Papers, E. O. Reed, Chairman. Cooperative tests have been made by a number of laboratories to improve the technic as proposed last year and to find the degree of agreement among different laboratories.

Microscopical Determination, C. E. Libby, Chairman. Further attention has been given to the use of the dot method for counting fibers in paper composition determinations.

Chemical Methods, Miss H. U. Kiely, Chairman. Study has been made of qualitative determination of formaldehyde as proposed by Bentzen; revision of the method for quantitative determination of paraffin to include separation from resin; revision of the method for quantitative determination of starch to include the use of Benedict's solution; and determination of acidity. Experimental tests showed that a quantitative separation of paraffin could be obtained by using acidified carbon tetrachloride as the extracting medium. Benedict's solution, which was proposed by Genberg, is superior to Fehling's solution for determining starch as it is somewhat more rapid and the end point is more definite. Its use will be proposed as an alternative method as both solutions give equally accurate results. The method for determination of formaldehyde requires some further study to determine whether it is positive in all cases. The acidity method is likewise being further developed. Hall's method gives quite good results but some modification of it seems desirable. The Committee on Roofing Felts, P. W. Codwise, Chairman, has investigated during the past year various methods of testing this product.

Permeability to Liquids, Allen Abrams, Chairman. Cooperative tests by various laboratories were made in study of methods for determining degree of sizing and grease resistance. The Carson curl sizing test and the Carson dry-indicator method, both with and without the penescope were used. Several methods following the recommendations made in H. A. Smith's sub-committee report for the previous year were used in studying the determination of grease resistance. Some very interesting data were obtained. In both cases further development work is necessary.

These development projects will be reported in detail and discussed during the sectional meeting on paper testing.

A meeting of the Paper Testing Committee was held at the Bureau of Standards June 14, 1928. In addition to reorganizing the sub-committees to handle the work outlined above, further revision of the publication edited by the committee, "Paper Testing Methods," was discussed. It appears that a revision should be made every two years. The publication therefore will be kept under continuous observation by the committee. Association members are again urged to submit recommendations at any time respecting improvement of this publication.

General Developments in Paper Testing

One of the most interesting developments in testing is the noticeable increase in the use during the past year of the official Association method for determining opacity. Practically all of the leading manufacturers of book paper have instituted the use of this method. The inclusion of specifications for opacity based on this method in the Government Printing Office paper specifications no doubt has helped to stimulate this interest. During the past year the paper section of the Bureau of Standards has calibrated for paper testing laboratories, 20 opacity apparatuses of the type designed by the Bureau. Interest in determination of aptical properties of paper in general is very keen.

Following are some of the important articles dealing with paper testing which have been published during the past year. These have all been published in the Technical Section of the Paper Trade Journal. The date of publication is given.

The McLaurin Gummed Tape Tester, April 5, 1928. A device for measuring the adhesive strength of the tape.

Detection of Formaldehyde in Paper, T. C. Bentzen, July 19, 1928.

Fastness Measurements for Colored Paper, P. Dalen and P. Wilke, August 16, 1928. Discussion of study of various lamps for this purpose.

The "Kerosene Test" for Roofing Felt, P. W. Codwise, September 20, 1928.

Determination of Opacity of Paper. TAPPI Official Method, September 6, 1928.

Determination of Gloss of Paper. TAPPI Official Method, September 13, 1928.

Opacity Determination with the Ives Tint Photometer, R. H. Doughty, Forest Products Laboratory, November 8, 1928.

Measuring the Bulk of Paper, Final Report of Bureau of Standards, August 23, 1928.

Increasing the Capacity of the Elmendorf Tearing Tester, F. T. Carson and L. W. Snyder, Bureau of Standards, March 29, 1928.

A Study of the Thwing Impact Tester, H. C. Eckhardt and L. W. Snyder, Bureau of Standards, April 12, 1928.

Results with Testers for Measuring Tensile Strength of Paper, R. E. Lofton and L. W. Snyder, Bureau of Standards, June 14, 1928.

Need for Intensive Research on Paper Testing

The Paper Testing Committee has practically completed its standardization of the test methods that were available at the time the development of official Association methods was undertaken. It must be apparent to anyone who has given the matter of testing paper careful attention that the development of methods has progressed very slowly. Most of the chemical determinations that we use are adaptations of methods developed originally for other purposes. Few of the physical methods are entirely satisfactory. There are no entirely satisfactory methods available for measuring the optical properties of paper.

A survey of the situation as a whole shows that there are some over fifty items on which research should be made to develop information that is urgently needed.

What is wanted is intensive study to develop the necessary fundamental knowledge of paper as related to its testing. Such studies as relation of physical properties of papers to their moisture equilibrium; consideration of the validity and value of the theory of elasticity, homogeneity, etc., in determining the mechanical properties of paper; are examples of means of approaching the problem. Work of this kind must necessarily be carried on as a cooperative project. It would seem that the Association could well consider the advisability of financing paper testing research, through the establishment of research fellowships in suitable laboratories. It is hoped this suggestion will receive the careful consideration warranted by the important relation testing bears to all manufacturing operations and to the use of paper.

The Association has taken the lead in standardization of paper testing. It could perform no better service than to take the lead also in developing methods based on sound fundamental knowledge.

Presented at Annual Meeting TAPPI, Feb. 19, 1929.

[1] Member TAPPI; Chief, Paper Section, U. S. Bureau of Standards, Washington, D. C.

Retention of Filler in Paper*

By G. K. Spence[1]

Since clay is the form of filler most generally used in the manufacture of paper, the following treatise will be confined to this material. The same procedure is applicable to other fillers when proper consideration is given to the composition of each.

By retention is meant the percentage of the amount of filler added to the stock in the beater that is actually retained in the finished sheet of paper.

While there have been proposed quick methods for calculating per cent retention, there is no accurate short quick method applicable. It seems very simple to say that the per cent retention is found by dividing the weight of filler in the finished paper by the weight of filler used in the beater and multiplying by 100; but it requires time and labor to obtain this figure when the information is required at any particular time.

Test Procedure

In order to make a retention test by the above method it is necessary to consider very carefully the following steps:

(1) Measure amount of stock in machine chest before starting the test run and have same amount of stock in chest at completion of run.

(2) Obtain total weight of fresh clay used in the beaters.

(3) Determine clay content per gallon of broke and number of gallons of broke used.

(4) Determine clay content per gallon of return water and number of gallons used.

(5) Return all wet broke from the paper machines to the beaters of stock made up during the test run.

(6) Weigh and determine clay content of all paper and broke made during the test run.

(7) If using mud save all or old paper stock in the beaters, determine clay content per gallon and number of gallons used.

(8) Make the test run on at least ten beaters of stock.

Following are results of a retention test made on 15 beaters of stock, using no reclaimed old paper stock.

Clay content of broke used	1,625	pounds
Clay content of return water used	20	"
Fresh clay used 15 x 500 lbs.	7,500	"
Total clay used in beaters	9,145	"
Finished paper made	28,000	pounds
Dry broke made	2,765	"
Total paper and broke	30,765	"

Moisture content of paper made—4 per cent.
Average ash content of paper made—14.52 per cent.
(Clay used contained 13 per cent combined water and natural ash of fiber used was .75 per cent.)

Therefore, the finished paper and dry broke contained 16 per cent clay, or a total clay content of 4,922 lbs.

$$\text{The retention was } \frac{4922}{9145} \times 100 = 53.6 \text{ per cent}$$

The work can be simplified to some extent by calibrating the beater, determining the clay content per gallon and number of gallons of stock in each beater when completely furnished, and the number of beaters discharged during the test run. When handled in this manner the wet broke cannot be returned to the beaters, but must be kept separate and the dry weight and clay content determined. The clay content of the wet broke is either deducted from the amount used in the beater or added to the clay content of the finished paper before calculating the percentage retention.

Short Method

As stated, the method requires considerable labor, collecting and weighing wet and dry broke made during the run, and the necessity of running a number of beaters of stock in order to get dependable results. The following proportion method used by the writer gives very dependable results, does not require any labor in the mill, can be made on any paper machine at any time, and besides giving retention of clay used in the beater gives retention at the various points on the paper machine. If the ash in the sheet is comparatively low, the attention of the machine tender can be called to the point on the machine at which poor retention results are obtained and the trouble remedied when possible.

In order to carry out this method the following data are necessary:

(1) Moisture, fiber and clay content of the finished sheet.

(2) Fiber and clay content of the sheet passing from the wire to the first press (dry basis).

(3) Fiber and clay content of the stock in the water leaving the first press (dry basis).

(4) Fiber and clay content of the stock in white water from the wire (dry basis).

(5) Fiber and clay content of stock in the head box (dry basis).

(6) Fiber and clay content of stock in machine chest (dry basis).

(7) Combined water content of clay used and natural ash in the fiber mix.

The following calculations are based on the use of domestic clay containing 13 per cent combined water and practically no moisture; and on a fiber mix of 58 per cent soda pulp and 42 per cent sulphate pulp, the natural ash of the soda pulp being 1 per cent and of the sulphite pulp .40 per cent. If English clay containing about 10 per cent moisture is used allowance for same should be made when determining the clay and fiber content of the different stocks

Method of Calculation

In order to determine the clay and fiber content of the dry stock, the ash content is found in the usual manner and the following formula applied:

Let X = percent clay in the dry stock
Let Y = percent of fiber in the dry stock.

$$X + Y = 100$$

$$.87X + .0075Y = \text{percent ash in dry stock.}$$

$$Y = \frac{87 - \text{percent ash}}{.8625} \text{ or percent fiber.}$$

$$100 - Y = X \text{ or per cent clay.}$$

Example:—If the dry stock contains 17 per cent ash, the clay used contains 13 per cent combined water, and the natural ash of the fiber mix is .75 per cent, the percentage of clay and fiber in the dry stock is calculated as follows:

$$Y = \frac{87 - 17}{.8625} = 81.16 \text{ per cent fiber.}$$

$$100 - 81.16 = 18.84 \text{ per cent Clay.}$$

In the accompanying tabulation the first item shows the per cent of clay and fiber in the different samples tested as well as the moisture content of the finished sheet. Every 100 pounds of finished paper from the machine contains 15.51 pounds of dry clay and 80.49 pounds of bone dry fiber.

The clay content of the water from the first press is 8.13 times that of the fiber content.

Let X = Fiber in water from first press.
Then $8.13X$ = Clay in water from first press.

$15.51 + 8.13X$ = pounds of clay in sheet at first press per 15.51 lbs. in finished sheet.

$80.49 + X$ = pounds of fiber in sheet at first press per 80.49 lbs. in finished sheet.

$$\frac{15.51 + 8.13X}{80.49 + X} = \frac{16.89}{83.11}$$

$$83.11\ (15.51 + 8.13X) = 16.89\ (80.49 + X)$$

$$651.76X = 70.44$$

$X = .11$ lbs. fiber

$8.13X = .89$ lbs. clay.

$15.51 + .89 = 16.40$ lbs. clay in sheet at press per 15.51 lbs. in finished sheet.
$80.49 + .11 = 80.60$ lbs. fiber in sheet at press per 80.49 lbs. in finished sheet.

The clay content of the stock in the white water from the wire is 6.57 times that of the fiber content.

Let Y = Fiber in water from the wire.
Then $6.57Y$ = Clay in water from the wire.

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* Presented at TAPPI Annual Meeting, New York, N. Y., Feb. 20, 1929.
[1] Member TAPPI, chief chemist, New York & Pennsylvania Co. and Castanea Paper Co., Johnsonburg, Pa.

16.40 + 6.57Y = Clay in head box per 15.51 lbs. in finished sheet.
80.60 + Y = Fiber in head box per 80.49 lbs. in finished sheet.

$$\frac{16.40 + 6.57Y}{80.60 + Y} = \frac{47.06}{52.94}$$

$$52.94\ (16.40 + 6.57Y) = 47.06\ (80.60 + Y)$$
$$300.76Y = 2924.82$$
$$Y = 9.72 \text{ lbs. fiber}$$
$$6.57Y = 63.86 \text{ lbs. clay.}$$

16.40 + 63.86 = 80.26 lbs. clay in head box per 15.51 lbs. in finished sheet.
80.60 + 9.72 = 90.32 lbs. fiber in head box per 80.49 lbs. in finished sheet.
Let Z = Fiber added by return water from wire.
Then 6.57Z = Clay added by return water from wire.
80.26 — 6.57Z = Pounds clay in chest per 15.51 lbs. in finished sheet.
90.32 — Z = Pounds fiber in chest per 80.49 lbs. in finished sheet.

$$\frac{80.26 - 6.57Z}{90.32 - Z} = \frac{26.28}{73.72}$$

$$73.72\ (80.26 - 6.57Z) = 26.28\ (90.32 - Z)$$
$$458.06Z = 3543.16$$
$$Z = 7.74 \text{ lbs. fiber}$$
$$6.57Z = 50.82 \text{ lbs. clay.}$$

80.26 — 50.80 = 29.41 lbs. of clay in chest per 15.51 lbs. in finished sheet.
90.32 — 7.74 = 82.58 lbs. of fiber in chest per 80.49 lbs. in finished sheet.

The second item in the accompanying tabulation shows the pounds of clay and fiber in the dry stock at the different points per 100 pounds of finished paper from the machine. From these figures the per cent retention can be calculated for the different points.

The third item in the tabulation is the percentage of clay and fiber in the stock at different points that is retained in the finished sheet.

Chest	Head box	Through wire	Sheet to 1st press	Water from 1st press	Finished sheet
26.28% C.	47.06% C.	86.79% C.	16.89% C.	89.15% C.	4.00% Mois.
73.72% F.	52.94% F.	13.21% F.	83.11% F.	10.95% F.	14.10% Ash
					15.51% C.
					80.49% F.
29.41 lb. C.	80.26 lb. C.		16.40 lb. C.		15.51 lb. C.
82.58 lb. F.	90.32 lb. F.		80.60 lb. F.		80.49 lb. F.
52.72% C.	19.32% C.		94.57% C.		
97.47% F.	89.12% F.		99.86% F.		
Retained	Retained		Retained		

The following tabulation made from actual tests will show variation in retention at different times. In these tests no samples were taken of sheet going to first press or water from the press, due to the fact that sample of sheet going to the press cannot be taken without causing a breakdown. This step can be eliminated without causing any very great difference in the retention figures at the chest or head box:

Real Retention

The real retention figure which means dollars and cents to the paper manufacturer is the percentage of clay purchased that is actually sold again in the finished sheet. This figure is obtained in the following manner.

The average moisture and ash tests are taken of the paper from each machine daily. If the clay used contains 13 per cent combined water and the natural ash in the fiber mix is .75 per cent, the percentage ash in the paper is converted to percentage dry clay by the following formula:

$$\frac{\text{per cent ash in sheet} - (100\text{-per cent moisture}) \times .0075}{.8625} = \text{per cent dry clay.}$$

Average Clay Content

The sum of the results obtained by multiplying the average per cent clay in the paper from each machine by the daily production of the machine is divided by the total daily production to obtain the average clay content of the paper made.

The following tabulation shows the average clay content of paper from five machines on an actual daily production basis:

Machine No.	Per cent moisture	Per cent ash	Per cent dry clay	Paper production	Lbs. of clay in paper made
1	4.5	14.25	15.69	38,000	5,962
2	4.0	13.90	15.28	37,000	5,654
3	3.95	14.00	15.40	40,000	6,160
4	4.5	14.40	15.87	38,000	6,031
5	4.25	14.00	15.40	39,000	6,006
			Total	192,000	29,813

$$\frac{29{,}813}{192{,}000} = .1553$$

.1553 × 100 = 15.53% average clay content on actual production basis.

Accounting Figure

At the end of the month the sum of the figures obtained by multiplying each daily production by the average clay content is divided by the total pounds of clay used during the month to obtain actual retention figure for the month.

Test No.	Clay in beater furnish: Lbs. total clay	Lbs. new clay	Per cent new clay	Chest: Per cent clay	Chest: Per cent fiber	Head box: Per cent clay	Head box: Per cent fiber	Through wire: Per cent clay	Through wire: Per cent fiber
1	893.02	650	72.79	25.1	74.9	39.45	60.55	77.57	22.43
2	985.25	650	65.97	24.09	75.91	43.67	56.33	80.93	19.07
3	905.58	650	71.78	25.00	75.00	39.52	50.48	83.86	16.14
4	1154.01	650	56.33	26.12	73.88	38.98	61.02	78.37	21.63
5	1266.01	650	51.34	26.97	73.03	39.72	60.28	77.56	22.44
6	1073.89	600	55.87	26.89	73.11	37.95	62.05	75.92	24.08
7	1172.23	600	51.18	27.50	72.50	43.03	56.97	79.21	20.79
8	1172.23	600	51.18	27.68	72.32	42.31	57.69	78.85	21.15

Test No.	Paper: Per cent moisture	Paper: Per cent dry clay	Paper: Per cent fiber	Retention: Of stock in chest: Per cent clay	Retention: Of stock in chest: Per cent fiber	Retention: Of stock in head box: Per cent clay	Retention: Of stock in head box: Per cent fiber	Retention: On basis of fresh clay used
1	4.41	12.18	83.41	41.1	94.28	19.00	84.75	56.5
2	4.99	15.02	79.99	57.22	96.79	20.71	85.50	86.7
3	5.94	12.06	82.00	42.24	96.28	20.25	89.98	58.85
4	5.41	9.93	84.66	31.00	93.29	15.63	85.12	55.03
5	4.41	12.98	82.61	40.00	93.20	20.22	84.80	77.91
6	3.22	12.53	84.25	37.46	92.69	20.55	84.58	67.05
7	3.25	12.49	84.26	37.00	93.71	16.39	83.43	72.29
8	4.53	13.94	81.53	42.00	92.89	19.63	84.19	82.06

Deterioration of Paper By Excessive Acidity*

By W. F. Hoffman [1]

This paper is not written with the viewpoint of presenting new data or discussing or criticizing data that have been presented to this Association or have appeared in the various trade journals. Rather than do this, the writer has felt that the work of the Committee on Fine and Special Papers dealing on the deterioration of paper had a wider application than the title indicates, because of the wide field it covers. This work deals not only with methods of measuring deterioration or keeping qualities of paper, but reflects into the manufacture of the paper.

Acidity Caused by Alum

The part acidity plays in the deterioration of paper is an important and a complicated one. This is caused principally by the alum added to the paper furnish, and as the number of variables is large, the problem of establishing optimum conditions for operating is very complicated. The acidity of the furnish or the finished paper is only one of the factors involved in the deterioration of paper on aging; also, the deterioration caused is not the only factor in which acidity of the furnish or the finished paper is involved. In the end, this optimum operating condition of acidity is met by a balance of all factors involved and on many of these we have very little data. This applies more especially when two or more of these factors are considered at one time.

Acidity Factors

A few of these factors in which the acidity probably plays a part will be referred to as a basis for discussion of this section, as well as to serve as suggestions for special cooperative work in an attempt to throw more light on this problem. The effect of acidity on the finished paper has been worked out for special types of paper and this part of the problem will not be discussed, but rather the problems involved in the manufac-

* Presented at Annual Meeting of TAPPI, New York, Feb. 20, 1929.
[1] Research Dept., Northwest Paper Co., Cloquet, Minn.

ture of paper which are probably affected, to some degree at least, by the acidity of the furnish.

Several papers have been recently published which present evidence indicating that there can be no universal optimum pH or acidity for manufacturing all grades of paper or even for the manufacture of the same grade of paper by different mills. Some of the factors affecting this have already been mentioned. These data show that for a paper that will not deteriorate appreciably on aging, the acidity of the furnish and of the resulting paper must remain under certain limits. If the acidity is higher the paper will deteriorate very fast, the Mullen test will drop and the paper becomes brittle on aging.

Use of Alum

The acidity of the furnish or finished paper is usually caused by the alum used to set the size. If there is only enough alum used to theoretically set the size excessive acidity will not occur. However, this is very seldom done as an excess of alum is usually used. This excess of alum is supposed to be of value in preventing foam, in setting the color, in giving a better rattle to the paper, increase the retention of the filler, make sticky stock run satisfactorily, increase the strength of the sheet, as well as cure many other ills of the paper making operation.

Of course, it is not believed that alum is the universal cure for all paper machine ills, but the definite information concerning most of these factors, in which alum plays a part, is not conclusive. We know that so far as acidity is concerned, that can be adjusted with acid, but the desired results are not entirely obtained. More definitely, if we deal with and talk only in terms of pH or acidity, not all of the story is told. There undoubtedly is more in the part alum plays when added in more than theoretical amounts than to adjust the acidity.

Optimum pH for Precipitating Rosin

In the sizing of paper with sodium resinate, alum is much more efficient in precipitating the rosin than is acid, although both will impart the same acidity to the furnish. The optimum pH for precipitating rosin with alum in water solution appears to be about pH 5.5 and requires about .75 pounds of alum to one pound of size, this varying somewhat, depending on the soda content of the size. It is not often that such a condition is reached in mill practice. Due to the same other factors the acidity may be above or below this value when such a quantity of alum has been added. The optimum acidity for sizing may or may not be about pH 5.5. Under certain conditions a pH of 4 is thought to be the best, while in others a pH of 7 is satisfactory. Even though a pH of 6 may be found to give the best results so far as sizing is concerned, there may be other factors, such as the color, when certain dyes are used which are affected.

There are other factors in the manufacture of paper in which alum plays a part, although in a less degree in most cases. As mentioned, color is affected by the pH of the furnish. The addition of the alum furnishes acid as well as aluminum hydroxide. In some cases both of these are important in coloring paper. This means that a balance, if it can be called such, must be made between the optimum quantity of alum added to proper sizing and for proper coloring.

Retention of Filler

There has been a considerable amount of work done on the retention of fillers in paper as affected by acidity of the furnish and also by the amount of alum added. The data given indicate that there is unquestionably a correlation between the amount of filler retained and the amount of alum added and the pH of the furnish. There is a question then, if this increased retention is due to a certain acidity alone or if it is due to the additional aluminum hydroxide formed or to both. This then brings in a third optimum acidity or amount of alum to add to the furnish.

The alum added to the furnish has an affect on the physical properties of the finished paper other than on deterioration on aging. Sometimes the properties imparted by an excess of alum are desirable for a particular type of paper.

There are many difficulties encountered in running a paper machine which are thought to be eliminated or materially reduced by alum. To what extent alum is an aid in overcoming these is questionable, although difficulties, such as foaming, are undoubtedly influenced by the acidity of the furnish.

Lastly, but undoubtedly of more importance than is usually given to it, is the effect of the acidity of the furnish on the paper mill equipment. An acidity equivalent to pH 4.0 or less will cause corrosion to take place at a much more rapid rate than if the furnish has an acidity equivalent to pH 6 or 7.

Several of the factors involved in manufacturing a sheet of paper in which alum plays a part have been mentioned. If a furnish formula is worked out for a certain paper and only one of these factors is taken into consideration at a time, it is possible to have as many formulae as there are factors, each including a different alum content. In working out a formula for a certain paper a part or all of these factors must be taken into consideration. That is, we might say that the first is permanence of the finished paper, but it is entirely possible that a condition under which a paper would be obtained, which will not deteriorate, would not be suitable for proper sizing and coloring, and so on.

The optimum amount of alum added to a furnish or the optimum acidity for manufacturing a particular type of paper usually cannot be based on any one factor, but must be based on the composite result.

Summary and Recommendations

The writer does not know whether it is the function of this committee, but would like to see cooperative work done in an attempt to answer some of these question. We have some information concerning the individual factors, but very little on the various combinations. To obtain the most out of such work an outline should be planned in order that the results may be comparable.

No attempt has been made to present new data or to interpret or discuss any published data on the deterioration of paper. One of the important factors in the deterioration of paper on aging is the acidity, which is usually caused by the alum added to set the rosin size. Attention is called to several factors in the manufacture of paper in which the alum content and the acidity of the furnish or the finished paper play a part. The optimum alum content of the furnish or the acidity as represented by the pH value cannot, in many cases, be based on any one factor in the manufacture of paper, but must be based on all of the factors which enter the manufacture of that particular paper. It is suggested that cooperative work be carried out according to a program to be worked out by this committee, if similar work is not being done by any other committee, to determine as far as possible what the effect of different amounts of alum and various acidities have on these various factors noted below; not individually but in various combinations.

Factors Noted

The factors noted above are:

Deterioration of paper on aging.
Sizing of the paper.
Coloring of the paper.
Retention of the filler in the paper.
Physical properties of the finished paper.
Difficulties in operating a paper machine.
Effect of varying acidities on the paper mill equipment.

This is not intended to be a complete list, but is offered as suggestions on which to start the work.

Invisible Shrinkage*

By A. W. Pesch [1]

When one looks over the record of technical control in pulp and paper mills during the last ten years, he is certain to notice the large amount of interest that has been given by the industry to the question of pulp losses in the discarded white water. Probably no other single factor had a greater influence upon executives of paper and pulp mills in causing them to employ more and better trained technical help than the feeling that something simply had to be done to cut down the tremendous losses of fibers going into the rivers with these so-called white waters. Saveall equipment, methods of reclaiming fibers, and fillers from white water, and methods and equipment for measuring white water stock losses have been given a great deal of study and have been very much improved during the last decade. Great sums of money have been spent by the industry and on the whole the savings have probably justified the investment.

But the fact is that in many cases the book figures of the cost accountant still show a tremendous loss or shrinkage in weight between the pulp furnished into the beaters and the pulp accounted for by paper produced. In fact altogether too many paper mills still show shrinkage loss figures running anywhere from $25,000 to several hundred thousand dollars per year. Altogether too many mills are still showing a fiber loss of from five to fifteen per cent between the beater room and the finishing room. The writer has heard more than one mill manager express himself to the effect that his investment in saveall equipment seemed to have made but little difference in his paper mill shrinkage. Can a mill executive be blamed for feeling disgusted under those conditions?

The investigations of different parties has led them to the conclusion that the percentage of fiber lost in the white water from a paper mill with a good white water system and fairly efficient saveall equipment should not exceed about one per cent of the pulp furnished in the case of long fibered stock, such as sulphite and sulphate; under good conditions there appears to be no reason why the percentage of lost fiber in the case of short fibered stock, like ground wood, should exceed several per cent.

Book Values vs. Actual Losses

What then is the answer, when with good equipment and good management the books appear to show that from 5 to 15 per cent of the pulp supplied to the paper mill went down the river? The writer feels confident that in the great majority of such cases (with good equipment and good management of course) the excessive fiber loss is simply non-existent. The paper mill has been charged with a large amount of stock that it never received. Whether or not the large loss of fiber from the paper mill is real or fictitious can readily be determined by a careful and intelligent investigation of the discarded white waters. If such an investigation shows that the tremendous fiber losses shown by the books actually exist then of course no stone should be left unturned in the effort to eliminate the unnecessary losses. If on the other hand such an investigation discloses that these losses are really much smaller than those shown by the book figures, then the error in the amount of pulp charged to the paper mill should be corrected. In these days of small margin profits no paper manufacturer can afford to be ignorant of the true cost of his main raw material, the pulp.

The title of this paper was suggested to the writer by the mental shock he received about a year or two ago at a Wisconsin sectional meeting of pulp and paper mill representatives. We were discussing certain things such as white water stock losses and the yield of sulphite pulp per cord of wood. Somebody finally got up and said that at his mill the technical department consistently reported a much lower fiber loss than the production statistics showed. Therefore he figured that much of the fiber must have escaped detection by the chemist due to its passing through the filter paper instead of being retained. Continuing along this line he presumed that it was the "invisible" shrinkage that accounted for the large fiber losses shown on the books of so many pulp and paper mills.

Of course the probable answer is that his mill was suffering not from invisible shrinkage but from non-existent pulp production.

The proportion of the pulp that becomes soluble in the hydration processes of the beater room so that it will pass through a filter paper is so small that it is entirely negligible. Only such portions of the beater furnish, like alum, which are actually soluble in water can be considered as constituting a source of invisible shrinkage. The proportion of such soluble raw materials furnished into the beaters which is actually retained in the finished sheet of paper can be determined or estimated with a reasonable degree of accuracy. After all, the amount of the soluble ingredients going into a sheet of paper is so small when compared to the weight of the insoluble materials in the furnish that even a relatively large error in estimating the degree of retention of the soluble portion will involve but a small percentage of error when applied against the total weight of the furnish.

Materials Check Up

It should be clear, therefore, if reasonable care and intelligence is used in gathering statistics on white water losses, and if accurate figures on the paper production are at hand, that the amount of pulp furnished to the paper mill will be the sum of the pulp contained in the paper plus that contained in the white water. Naturally the average moisture content of the paper must be known and allowed for and if the paper contains a filler, the filler content of both the paper and the white water solids should be taken into account in the calculations. All of the ingredients that help to make up the weight of paper produced, such as pulp, waste paper, size, alum, wrappers, plugs, twine, cores, etc., must be included in the calculations but this is really a rather simple matter. Probably nearly every mill already uses such a method in making a statement of its paper mill shrinkage. But the fact that air dry pulp contains (by definition) 10 per cent moisture while most paper contains only about 6 per cent moisture, must be properly accounted for.

If the pulp furnished to the beater room, when calculated as indicated above, checks very well with the regular statistical or book figures, all is well and good. But if the method of calculation just outlined indicates that from 5 to 15 per cent less pulp was supplied to the paper mill than the book figures show, then the book figures should be corrected by reducing the amount of pulp charged to the paper mill. If there is any doubt in the matter the investigation should be continued energetically until the cause of the discrepancy is brought to light to everybody's satisfaction. If the large loss of pulp shown by the books is actually present then there is something seriously wrong with the technical man if he cannot locate and measure it. But the technical man who for some reason or other greatly exaggerates the fiber loss at his mill also does a large amount of harm to his employer and to his industry.

Pulp Yield from Wood

Now all of the above would be of no particular practical importance if it were not for the depressing effect that overestimated pulp production has upon the market price of paper. Most of us know from our contact with friends and acquaintances at other mills that there is a large difference in the reported yield of pulp from a cord of wood. Mills in one section of the country using a given species of wood, say eastern hemlock, purchased in about the same sizes from the same territory, are reporting yields varying

* Presented at Annual Meeting of TAPPI, New York, N. Y., Feb. 20, 1929.
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anywhere from 800 to 1,000 pounds or more of air dry sulphite per cord of rough wood. All might be well with the higher yield figures if it were not for the fact that the mills reporting higher yields per cord, also as a rule, show such high figures on paper mill shrinkage. Undoubtedly the wood room and cooking operations play an important part in the yield of pulp obtained per unit of wood but on the other hand we should not overlook the harm that is done to market conditions when the production of pulp is overestimated and the cost per ton of pulp correspondingly underestimated.

How does the underestimation of the cost per ton of pulp affect the market? The answer is simple. Many of the mills who manufacture both paper and pulp frequently have some surplus pulp on hand which they offer on the market in order to keep their pulp mills operating to capacity. Now if the overestimated pulp production shows the book cost of sulphite to be $45 per ton, while the true cost based on the pulp actually produced is $50, then there is every chance in the world that the pulp will be offered on the market at less than actual cost or at least at a lower figure than would be the case if the true cost were known. In a depressed market it becomes a case where the last straw breaks the camel's back. The final effect is a reduction of the price level of both pulp and paper throughout the industry.

The purpose of cost accounting is to prevent just such things as the above from happening. But the cost accountant is not always in a position to obtain the necessary statistics of the required degree of accuracy. Unless the mill in question laps all of its pulp or unless it is equipped with adequate measuring devices for determining pulp quantities in slush form, the cost accountant is ordinarily forced to rely upon somebody's estimate of the quantity of pulp produced. Such estimates are often little more than a guess due to the fact that a close estimate is unlikely from the very nature of the case. Calculations of pulp production from test cooks in the case of chemical pulp or from the number of cords of wood used in the case of groundwood are some value but they are always open to suspicion because average working conditions day in and day out rarely coincide with those under which the tests are made. But regardless of the method used for arriving at the pulp production a close co-operation between the technical man and the cost or statistical department is of decided value to both and absolutely necessary if accuracy is to be secured. Only by this close co-operation can the interests of the employer be served to the fullest extent.

Summary

In conclusion the writer wishes to point out that it was not the purpose of this paper to go into the technical details of how to determine white water stock losses with accuracy. Those methods are or should be well known by the members of this Association. Those methods have been well discussed in previous papers presented before TAPPI and by the numerous other articles that have been published on the subject. But if any mill is not already equipped with an adequate system for determining these losses and is not now using it daily for routine control then this mill is overlooking a very important instrument of technical control. In any event, however, no effort should be spared, in seeing to it that the figures on fiber losses are of such a high order of dependability that the cost accountant will feel confident of their accuracy. When such a condition begins to exist generally throughout our industry there will no longer be any reason for mills not knowing accurately the amount of pulp produced. With accurate cost data the demoralizing effect of throwing pulp into the market below cost will stop and a very important factor behind the "profitless prosperity" in these days of overproduction in the paper industry will be eliminated. The man who has invested his money in paper and pulp mills and the men employed by the industry are entitled to a fair return. It is up to the technical man to get hold of the facts and to give them the proper interpretation for the benefit of the mill management.

Artificial Plastics in Pulp and Paper Industry*

By Charles W. Rivise [1]

Artificial plastics, for the purposes of this article, may be divided into the following two classes:

1. The non-resinous plastics, including among others, the celluloids, the cellulose esters and ethers.

2. The resinous plastics, which may be further divided into:

A. The modified resins which are obtained from natural resins by means of special chemical processes designed to modify their composition and their properties.

B. The synthetic resins—materials which though not strictly resins, approximate the natural resins in some of their physical properties and which may be obtained by chemical processes from non-resinous starting materials. The term "synthetic resin" is also very frequently applied to all artificial plastics, however obtained.

The Cellulose Plastics as Paper Sizes

The cellulose plastics are of interest to workers in the paper industry principally because they are usually made of the same starting materials as is paper. In fact celluloid or Xylonite is often made from paper itself. It is interesting to note that these plastics have been suggested for use as paper sizes as well as artificial leather coatings for paper and other fabrics. For example in Patents 1,505,043 dated August 12, 1924; 1,563,204 dated November 24, 1925 and 1,625,416 dated April 19, 1927, Lilienfeld suggests the use of ethyl derivatives of cellulose for these purposes. However, most of the artificial leather that is being made at present consists of some coated fabric other than paper.

The Modified Resins as Paper Sizes

The modified resins have also been suggested as paper sizes. Thus Carleton Ellis in Patent 1,007,681 dated November 7, 1911 describes several methods of making a paper size from the rubber resins obtained in the purification of Jellutong or Pontianac gum. These products are practically unsaponifiable and are therefore waste products. But when mixed together with a saponifiable resin, such as rosin and an alkali, there is formed a size which is said to be particularly resistant to light. Guayule resin as well as a colloid carrier such as carbohydrates and albuminoids may also be added. When the quayule resin is added the size is only suitable for dark or colored paper.

The Synthetic Resins as Paper Sizes

Similarly the synthetic resins, particularly cumaron resin and the phenolic condensation products, have been suggested and tried with more or less success. Since cumaron resin cannot be directly saponified by means of an alkali, it must first be mixed with a saponifiable resin such as rosin. Thus Muth in Patent 1,194,866 dated August 15, 1916 melts rosin and cumaron resin together and then boils the mixture with just sufficient alkali or ammonia or alkali metal silicate until the whole mass forms a uniform emulsion. A variation consists in melting the cumaron resin together with a saponifiable oil or fat before the alkali is added. The advantage of using an artificial resin is that it can be prepared with a greater degree of purity than can a natural resin.

In German Patent 348,063 dated September 6, 1918, the cumaron resins are mixed with an alkali salt of a sulphonated aromatic or napthenic acid to facilitate emulsification. A variation consists in first mixing the resin with an aromatic or naphthenic compound

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and then sulphonating the mixture. In either case the neutralized and emulsified product can be used as a paper size.

The use of the cumaron resins as sizes brings to mind Patent 1,302,209 to Perry dated April 29, 1919, and Patent 1,218,599 to Eichler dated March 6, 1917. In the first patent is disclosed a substitute for a roofing felt made by incorporating rosin, cumaron resin, bakelite or other resinous material into the watery pulp of beaten rags or paper or a mixture of the two. The resin is added in a comminuted form or as filaments of dry material to the stock in the beater and the mixture is formed into sheets in the usual manner.

In the latter patent the cumaron resin is added to a heated quantity of a vegetable oil, such as China wood oil, linseed oil, poppy seed oil or soy bean oil, and the mixture added to a volatile solvent. The inventor claims that a sheet of paper impregnated with the resulting mixture is rendered not only transparent and waterproof, but also acid and alkali resistant and its tensile strength is almost doubled. A leather substitute may be made by impregnating and coating a fabric with the mixture.

The Various Synthetic Resins

Besides the cumaron resins and the phenolic condensation products, the class of synthetic resins includes the phenol sulphur resins, the glyptals which are made from glycerine and phthalic anhydride, the urea and thiourea derivatives and the ketone resins as well as a great number of others that can be made from diverse materials as corncobs, nitrogenous residues, tars, proteins, albumins, casein, aldehydes, phenols and their derivatives. It has even been proposed to utilize the waste sulphite and residual black liquors from paper manufacture as starting materials.

Synthetic Resins from Sulphite Black Liquor

In patent 1,143,714 dated June 22, 1915, Knight concentrates and ferments the waste liquor, in the manufacture of wood pulp to produce alcohol. The alcohol may be distilled off by means of sodium or potassium dichromate; a small amount of condensing agent is added and then enough phenol, cresol or creosote oil is added to combine with both the lignone compounds of the waste liquor and the acetaldehyde. The dichromate acts as the oxidizer for the alcohol and the chromium salt produced acts as the condensing agent. Other condensing agents mentioned are acids such as hydrochloric, alkalis, such as caustic soda or potash; salts such as sodium thiosulphate, zinc chloride or zinc and hydrochloric acid, ferric chloride, ferrous or ferric sulphate or lime. Ammonium carbonate may also be used. Various diluents or modifying agents such as nitro, chloro or amido compounds of aniline, naphthalene, benzol, toluol or anthracene may be added before or during the condensing step. The condensation may be carried out in situ in wood or other porous material to produce insulators. The product is said to be suitable as a rubber or shellac substitute as well as a varnish or electrical insulating composition.

In Patent 1,614,025 dated January 11, 1927 Conner acidulates the residual black liquor derived from coniferous woods in the soda process with sulphuric acid, grinds and dries the precipitate. He then dissolves the resulting wood gum containing lignin and resin acids in caustic soda and adds a phenolic material such as cresylic acid and formaldehyde, acetaldehyde or hexamethylenetetramine successively. He heats the mixture until the reaction occurs when it is cooled and neutralized with niter cake or sodium acid sulphate, washed, dried, ground with a filler such as wood flour and molded into the desired shape.

In Patent 1,561,728 dated November 17, 1928 Kirschbraun suggests mixing the waste sulphite liquor with a bituminous emulsion and paper stock before adding a converting agent such as formaldehyde thereto. The mixing is preferably done in the beaters, but it is permissible to coat previously prepared paper with an emulsion containing the sulphite liquor and bitumen and unite several plies thereof. The product is said to be a waterproof and greasproof paper.

Methods such as those disclosed by Knight, Conner and Kirschbraun should go a long way toward solving the problem of what to do with waste products of the pulp and paper industry, as well as decreasing the costs of production in both the paper and plastic industries. As yet, not much has been done to commercialize these methods, but the future holds much in store for inexpensive methods of preparing synthetic resins and the day may yet come when the waste products of the paper industry will be the raw materials of the plastic industry.

The Interdependence of the Plastic and Paper Making Arts

Be that as it may, it is an inescapable conclusion that the plastic and the paper industries have mutually contributed to each other's growth and will in the future continue to become more and more interdependent. Paper materials are particularly suitable as fillers for synthetic resins. Many patents mention this use and an increasing amount of paper is being used for this purpose.

At this point it should be clearly understood that the addition of fillers to synthetic resins, particularly of the phenolplastic type, is not necessarily for the purpose of cheapening these materials. Very rarely, indeed, are resins hotpressed by themselves for commercial purposes; they are too brittle and lack the requisite resiliency for many purposes. It is the so-called fillers that remedy these drawbacks and when carefully selected and employed, they materially assist the plastic in developing increased elasticity, resistance to blows and shocks and in making them easier to work upon mechanically. The misnomer "filler" is being gradually displaced by more accurate terms as "reenforcement", "extending agent", "modifying agent" and "binder".

Methods of Incorporating Resins and Fillers

There are various methods of incorporating the fillers into the plastic, or incorporating the plastic into the filler. In Patent 939,966 to Baekeland dated November 16, 1909 it is stated that the pulp may be added to one or the other of the reagents before causing the chemical reaction or to any intermediate reaction product. In Patent 1,302,209 to Perry, previously referred to, and in Patent 1,365,801 to Carter dated January 18, 1921, the resin is added to the pulp in the beater. In Patent 1,077,113 dated October 28, 1913 to Aylesworth it is suggested that the synthetic resin be dissolved in a neutral solvent such as acetone, alcohol, methyl alcohol, amyl acetate or mixtures thereof before incorporating the filler. This causes the filler to be impregnated with the resin and makes for a more homogeneous product. A variation in which the filler is first moistened with a hydrocarbon solvent for the synthetic resin before it is added to the resin is described in Patent 1,343,575 to Nash dated June 15, 1920. The solvent may be creosote oil or shingle stain oil.

Laminated Paper

Another method of incorporating synthetic resins and paper, consists in embedding one or more layers of paper in the synthetic resin. Such a method is disclosed in Patent 1,192,833 dated July 25, 1916. Other similar methods consist in impregnating or coating several layers and uniting them by means of heat and pressure, as described in Patent 1,019,406 to Baekeland dated November 30, 1910 and Patent 1,150,642 to Stockhausen dated August 17, 1915. Laminated paper made by some of the above methods is on the market under trade names such as Dilecto, Micarta and Bakelite Laminated.

The material, laminated or unlaminated, may be in the form of sheets or may be made into rods, bars and even cylinders. See Patent 1,083,264 to Baekeland dated December 30, 1913 and Patent 1,137,373 to Aylsworth dated April 27, 1915. But whatever the method of incorporation and whatever the shape of the resulting material, the product is always found to possess properties adapting it to uses and applications never contemplated for any of the raw materials.

Applications of the Synthetic Resins

The versatility in properties, chemical and physical inertness as well as the ease with which these materials can be molded rapidly and with extreme accuracy to unchanging shapes and dimensions, have brought forth endless applications in diverse fields. Continued

research is gradually developing increased mechanical strength and resistance to shock, greater resistance to heat, water and chemical agents, so that the synthetic resins are rapidly reaching an industrial prominence, scarcely contemplated in prior years. In many fields, such as the automobile industry, they serve to the practical exclusion of other materials. An idea of the countless number of possible applications of these materials may be gotten from the fact that they are being used for attachment plugs, commutators, containers for chemicals, crank and lever handles, distributor heads, door handles and knobs, gear shift balls, instrument boards, lamps, switch bases and boards, and new applications are being developed almost daily. Hence it is not surprising that some authorities have prophesied that in a few years automobile and aeroplane bodies will be molded from laminated materials containing synthetic resins.

Of course it does not necessarily follow from what has already been said that paper materials will be exclusively used as fillers in the future. In fact in many of the applications given in the above list, other materials such as shredded textile material, wood flour, graphite and even asbestos are used to adapt the product for many specific purposes for which it otherwise would not be suitable. But that does not detract from the indisputable fact that the combination of paper and synthetic resin, be it in a molding composition or in a laminated product, has many valuable characteristics not possessed by either of the constituents.

Possible Use of Molded Synthetic Resins for Parts of Paper Apparatus

The thought has occurred to the writer, as it has no doubt to many others, that the phenolplastics such as Bakelite, Celoron, Durez and Durite are suited on account of their physical and chemical inertness to take the place of other materials used in paper machinery. Some uses that suggest themselves are press rolls, belting, fittings for pipes, bearings, gearings, pump parts, tanks, screen diaphragms, gaskets, buckets, dippers and even the agitators in stuff chests. That the present material, cold rolled steel, out of which most agitators are made, is entirely unsatisfactory has already been indicated by Special Inquiry No. 116 sent by the Secretary of the Technical Association of the Pulp and Paper Industry to all the members of the Association. The fact that there is a large amount of alum and chlorine in the stuff chests renders the problem a difficult one as most metals readily corrode and discolor the paper. Inquiries sent by the writer to a large number of the leading molders and manufacturers of artificial plastics have brought back the information that special phenolplastic materials have been developed which meet the specifications required. In this connection it is interesting to note that the Meadows washing machine is equipped with an agitator or impeller made of Bakelite protected by Reissued Patent No. 16,743 to Rocke dated September 20, 1927. Instead of molding the propeller out of a synthetic resin, it has been suggested that a coating of phenolplastic varnish would serve the purpose. The drawback with this expedient is that all coatings wear off by abrasion, no matter how resistant to chemicals, and frequent renewals would be required. However that may be, the writer has no doubt that soon many mechanical parts in the paper industry will be made in whole or in part of synthetic resins.

Mill Water Supplies and Waste Utilization *

By C. M. Baker [1]

Inadequate water supplies have been the necessity for white water utilization in many mills, and, since necessity has been said to be the mother of invention, water supplies must at least be related to white water utilization. It is not the purpose of this paper to discuss in detail either mill water supplies or methods of white water utilization, but merely to establish this kinship.

Not only is the quantity of water involved, but its quality is a predominating factor because treatment then frequently becomes necessary, and the cost is directly proportional to the quantity treated. Furthermore, if the fresh water is inferior in quality, it is probable that the white water wastes of many mills could be more easily purified than the fresh water used. The quantity of fresh water used in the mill is largely dependent upon the extent to which the white water is recirculated or utilized.

Water Supply

Except for boiler feed water used in the development of power, which is a subject for separate consideration not to be discussed in this paper, the water used in the manufacture of pulp and paper serves three primary purposes, as follows:

1. Washing impurities, such as chemicals and dirt out of the stock.
2. A conveyor, either of stock through the process or of wastes to the sewer or where otherwise disposed of.
3. Making chemical solutions as sulphite liquor, bleach, etc.

Quantity

Judging from the amount of water used in different mills it is probable that no two paper mill men will agree upon the amount necessary. Quantities ranging from 1,500 gallons to 150,000 gallons per ton of product have been reported. The slogan seems to have been, and is still in many mills, "Use all the water you can" rather than "Conserve water". This attitude appears to be due to a predominating feeling that water is relatively free, large quanties are necessary, and the more used the better will be the product. This, however, does not seem to be the case, because some mills have found that by recirculation and utilization of the white water better papers are produced, particularly regarding opaqueness. In any event white water may be utilized without deleterious effects.

In a report "White Water Losses and their Reduction" by a committee on wastes presented before this Association in February, 1923, volumetric flow diagrams are given for a 100 ton ground wood mill, a 25 ton sulphite mill, and a 120 ton news print mill. These diagrams indicate fresh water consumptions per ton of product of approximately 6,300 gallons, 63,000 gallons, and 6,100 gallons respectively. The diagram for the ground wood mill indicates a closed system; for the sulphite mill, recirculation only of white water from the second screen to the head box, and in the news print mill substantially a closed system. The large quantity of water necessary in the sulphite mill is obviously for the purpose of washing out the chemicals in solution. It is believed, however, that the figure of 63,000 gallons per ton of product is much higher than is being used in some mills of this class.

A certain board mill has reduced its water consumption from approximately 28,000 to 3,000 gallons per ton of product by merely recirculation of the white water through the showers without savealls. Another is operating on a closed system, with no effluent going to the sewers, while a third is saving $600 monthly in the cost of water purchased from a municipality. It has been reported that one news mill has operated on approximately 1,500 gallons of water per ton of product.

Quality

For convenience, water supplies for paper making may be divided into three classifications as follows:

A. Waters of inferior quality containing some dirt or sediment and may contain iron and other impurities.

* Presented at Annual Meeting of TAPPI, New York, Feb. 20, 1929.
[1] Member TAPPI; Engineer, American Paper and Pulp Association.

Such waters may be used in the manufacture of lower grades of paper where appearance is not a factor, such as kraft bag and wrapping, chip and newsboard, container liner, corrugating stock, binder board, insulating board, felts and strawboard.

B. Relatively clean waters free from suspended matter but may contain iron and other impurities in solution.

Such waters may be used in the manufacture of news, butchers' manila, catalogue, wall paper, mimeograph and tablet.

C. Clean, clear waters free from iron, color, and excessive hardness.

Such waters are necessary in the manufacture of book, glassine, blotting, bristol, cellucotton, cigarette, envelopes, lithograph, and tissue.

It will be observed from the above that the impurities of water most objectionable in paper making are suspended matter, iron, color, and hardness. Suspended matter is objectionable because of the dirt that is carried into the paper, and the possibility of clogging showers. Cellulose fibers absorb iron which causes white paper to turn yellow, and colored waters have a similar effect. Hardness interferes with the bleaching of cellulose fibers, particularly of sulphite pulp and requires a greater expenditure for chemicals in sizing. Other factors, such as uniform temperature, influence the product in certain classifications of the industry, but on the whole are of relatively minor importance.

Source

Fresh water supplies may be secured from either surface or ground water sources. The former are more apt to contain sediment and color, while the latter are more apt to be hard and contain iron. Small quantities of iron in ground water supplies when originally developed frequently increase with continued pumping, so that ultimately the water becomes objectionable. Water suitable for the lower grades of papers can frequently be obtained from streams and lakes without treatment. Streams, however, seldom can be used for the other two classes, but lakes often constitute a supply for Class B and occasionally for Class C. By filtration surface water supplies can be rendered suitable for any purposes. Ground water supplies are usually satisfactory for the highest grades of paper without treatment unless containing iron or because of hardness. The removal of iron and softening of water frequently involve difficulties and expenses impractical in the manufacture of paper because of the large quantities used.

The white water of a mill, and in fact any mill effluent containing suspended solids may furnish a satisfactory source of supply for reutilization in the mill, if not too highly charged with objectionable materials in solution. In many instances where a clean water is necessary, it will be more economical to utilize this water than to purify the raw water from which the fresh water supply of the mill is secured. In the manufacture of the lower grades of paper the white water wasted is often much better than the fresh water supply.

Treatment of Water

Almost any water can be so treated as to become a satisfactory source of supply for the highest grade of paper. The simplest form of treatment is the removal of suspended matter, which may be accomplished by plain sedimentation or by sedimentation with the use of coagulants, although frequently filtration is more practical for complete removal of suspended matter.

As previously stated ground waters frequently contain large quantities of iron. The iron contained in water as it comes from the ground is in the ferrous state, which upon contact with the air oxidizes to ferric iron and precipitates. The simplest form of iron removal, therefore, consists of aeration and sedimentation, which it is frequently necessary to follow with filtration to secure adequate purification. When the water also is highly colored or contains manganese, however, the question of iron removal becomes much more difficult, because these substances tend to hold the iron in solution.

Water may be softened either by the lime or zeolite process and, although the cost is somewhat high where large quantities are involved, softening is always practical and desirable for boiler purposes, and, with proper conservation, may be feasible for the full mill supply. There appear, however, to be some differences of opinion as to the importance of water softening, since in certain localities high grades of paper are made from hard water, it having been reported that one mill is manufacturing a high grade book with water containing 700 parts per million of mineral matter in solution.

The formation of slime has been in the past a troublesome problem in paper mills, particularly in connection with recirculation of white water. Slime is probably mainly due to biological growths, but under certain conditions may be due to accumulation of colloidal material. The former, however, can be controlled by chlorination and the latter by coagulation. Much progress has been made during the past two years in this respect.

White Water

As has been stated, the water supply serves three primary purposes in the paper mill, the washing out of impurities, a conveyor of stocks or wastes, and making of chemical solutions. In the soda and sulphate processes of pulping a large part of the water is evaporated and the recovered chemicals utilized in the system, while in the sulphite process the residual chemicals are wasted, together with the water used. Water is necessary in all of these processes to wash the chemicals from the stock. In the use of old papers or material it is necessary to wash dirt and other impurities out of the stock, but from the time the stock is delivered to the beater, the water is used only as a conveyor.

As a general rule, any stock or material that goes to the beater may be considered satisfactory for use in the paper. If such is the case there appears to be no logical reason why this water can not be recirculated through the system. In other words, a closed system from this point on seems practical thus conserving the large quantities of water now wasted from the machines in many mills.

Recirculation of the white water on to the screen showers without savealls is being practiced in some mills, and as previously stated one board mill is thus recirculating the white water through the shower to such an extent that the water consumption has been reduced from 28,000 to 3,000 gallons per ton of product. There can be no question that with adequate savealls white water can be recirculated on practically all showers. Furthermore, it is believed that the recovered fibers can be utilized in the product made. Exceptions may be taken to this statement by those engaged in the manufacture of high grades of paper, but certainly much can be done along this line.

Water Supply Development

Any program of increasing or improving the water supply involves an expense directly proportional to the quantity used. The first step in improvements, therefore, involves a careful, complete white water survey to determine the fullest extent to which the white water may be recirculated, and the consumption reduced. It is not the purpose of this paper, however, to discuss the details of such a survey since the general procedure is well known to all mill operators.

Briefly stated, the advantages in white water recirculation and utilization may be summarized as follows:

1. In connection with water supply development:

(a) Less cost for pumping water. While recirculation of the white water will require pumping the head against which the pumps must operate will be less. It generally costs about one dollar per million gallons to pump water against a head of ten feet. It is probable that in many mills there would be a much greater reduction in head than ten feet.

(b) Saving in the capital investment of increasing the supply where the quantity is now limited, or in connection with increased production.

(c) Less cost for purification where the raw water requires treatment. Complete purification of water such as is produced for potable municipal supplies costs in the neighborhood of ten dollars per million gallons including interest upon the investment, depreciation, chemicals, supervision, etc.

2. Other Advantages:

(a) Fiber or stock saved. A general survey of the industry indicates a return of from 10 to 2400 per cent upon the investment in the value of fiber returned and utilized. This constitutes the greatest value in white water recirculation and utilization.

(b) Saving in the reduction of other materials used, such as chemicals for sizing, filler and so forth.

(c) Conservation of heat, particularly in board mills.

(d) Reduction in stream pollution, and a material saving in the cost of treatment of the wastes from the mill if this becomes necessary.

The relation of white water utilization to water supply development appears to warrant the following conclusions:

1. The recirculation and utilization of white water directly affects water supply developments and purification in that it materially reduces the amount of fresh water required, thus resulting in a substantial saving in pumping costs, capital investment, and the cost of treatment.

2. The first step, therefore, in any water supply development or improvement should involve a careful study or survey in white water utilization in order to reduce the quantity of water necessary to a minimum.

3. Reduction in water consumption correspondingly reduces the volume of wastes that it is necessary to discharge into water courses, thus improving stream conditions, and should this improvement be inadequate, the cost of treatment of the residual wastes would be proportionately less.

The Xylol Test For Roofing Felt*

By P. W. Codwise [1]

In addition to the "oil penetration test" [2] for determining the rate at which roofing felt will saturate there is in use another method called the "xylol test" the details of which the Roofing Felt Committee is publishing herewith.

The principle of the xylol test is that of gauging the rate at which a light volatile liquid rises in a vertically suspended strip, the lower end of which dips beneath the liquid contained in a suitable dish.

Apparatus Required

The apparatus required consists of a supply of water white xylol (distilling at 140 deg. C., by the Engler standard method), a small dish or trough to hold the xylol, and a larger dish to use as a water bath. A ring stand and movable clamp to hold the sample and dip it in the xylol are also desirable. In addition to these a stop watch and a centimeter scale are necessary.

Procedure

The strips of felt for test are prepared by being cut lengthwise from the sheet 15 mm. wide, and of sufficient length, for example 12 cm.; these are marked by drawing pencil lines across each one at points exactly 1 cm. and 4 cm., away from the lower end.

The strip is then clamped in a vertical position by its upper end well above the surface of the xylol. To start the test the clamp and strip are quickly lowered until the surface of the xylol is exactly at the 1 cm. mark. Care should be taken to keep the temperature of the xylol at exactly 77 deg. F., and the water bath is specified for this purpose. For the sake of convenience in noting the end point a small amount of oil soluble aniline dye may be added to the xylol. By means of the stop watch the time is recorded in seconds required for the xylol to rise by capillarity up to the 4 cm. mark; that is, the time required by the liquid to rise exactly 3 cm. is noted and reported as the "xylol test."

Interpretation of Results

When reporting upon this test the moisture condition of the felt, whether bone dry or air dry, should be stated and if an air dry sample is tested the moisture content should be given in percent.

In considering the results obtained above, each weight, or thickness, should be classed by itself when translating the results into terms of saturating machine behavior. This is due to the fact that the thickness is not a controlling factor in the result of a test to determine the vertical rise by capillarity such as this, while the thickness is a vital feature of the rate at which the felt saturates in practical operation. The results of this test may be used in conjunction with a test for saturating capacity such as the "kerosene test" [3] recently published by this committee.

* Presented at Annual Meeting of TAPPI, New York, Feb. 21, 1929.
[1] Member TAPPI; Chairman of Committee on Roofing Felt and Paper Board.
[2] Paper Trade Journal, March 1, 1928.
[3] Paper Trade Journal, September 20, 1928.

Predict Great Results from Mulch Paper

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, March 18, 1929.—Paper Mulch was discussed at the last meeting of the Montgomery County Horticultural Society, with Mrs. W. J. Hanitch as the principal speaker.

Mrs. Hanitch dealt comprehensively with the subject. "The time soon will come," she said, "when our crops will be larger and earlier and will be produced with less labor when we grow them under paper in the manner now used with such success by the pineapple industry in the Hawaiian Islands."

Mrs. Hanitch explained that about one year ago mulch paper became available commercially. "The advantages of mulch paper," said the speaker, "are that it prevents the growth of weeds, retains the heat and moisture, prevents the hardening of the soil, does away with the necessity of cultivation, and stimulates growth of vegetables and fruits.

"A temperature ten degrees higher in the day time and five degrees warmer at night is maintained under the black paper than on unmulched spaces. Caution against using tar paper is to be heeded.

"The mulch is anchored by stones or stakes, or clods of dirt thrown over edges of the paper. Though rather expensive the paper will last two seasons."

J. H. Kauffman, Alfred Shirer and others discussed the use of the paper and believed it to be a great step forward in cultivation of garden products, vegetables and virtually all growing things.

Coal and Ash Handling Equipment

The Palmer-Bee Company, of Detroit, Mich., have just issued a bulletin describing and illustrating their coal and ash handling equipment, including skip hoists, coal weigh larries, cable power scrapers, coal crushers, coal and ash bunkers, ash hoppers and gates.

This bulletin is of special interest to the paper industry and the Palmer-Bee Company will be pleased to send a copy to any reader upon request.

Section of the

COST ASSOCIATION OF THE PAPER INDUSTRY

Affiliated with

THE AMERICAN PAPER AND PULP ASSOCIATION

Edited by
THOS. J. BURKE, C. A., Sec.-Treas.

Cost Finding And Estimating*

By D. A. Wilcox, Oxford Paper Co.

My effort today is going to be along the idea of either pointing out the necessity for a broader conception of the meaning of the word "cost" among what we might term "laymen," or a plea for the use of a new and more comprehensive word to describe the results of our efforts. Let me say right now, at the beginning, that I am not attempting to advocate any particular method of accounting, nor to recommend its use in any special place.

Many New Theories

During the last few decades, we have seen many new theories regarding "cost accounting" spring up, such as the use of replacement values for calculating depreciation; the inclusion of interest on investment as an element of "cost" and the use of standards. The first difficulty encountered with these ideas is, that of their being "cost" at all, and often so much effort is used up in this phase that little energy is left to consider the merit of the theories themselves as useful instruments of analysis. I have, myself, wasted lots of time this way, because I had, in my own mind an idea of what a "cost" was, and not being very different from the ordinary run of folks I did not have that very broad conception of the meaning of the word which is acquired by years of learned associations. Thus I feel, in a sense that I speak for the uninitiated layman when I say that the present general conception of a cost is violated by some of the theories being promulgated. This is unfortunate, because they are basically valuable in many instances and should be used whether the resulting figure represents a cost or whatever it may be. The point I wish to make is, that a new idea should be tested solely as to its utility and the question as to whether or not it represents a "cost" disregarded entirely.

What Is Generally Understood by Cost

Now let us see what is generally understood by the word "cost." My own conception of it was in the nature of an actual expenditure of some form of the company's capital (whether acquired by cash or credit), and represented, in a sense, how much they were out of pocket. For some degree of confirmation of this I shall quote a few definitions of the word "cost" from Webster's Dictionary:

1—A Rib. This may be slang for a woman. If so, the definition may be quite apt, for often the two are synonymous, both being dear and sometimes troublesome. However, here are some others:

2—The amount, or equivalent, paid or given or charged or engaged to be paid for anything.

3—Expenditure, outlay, as of time, money or labor.

4—*In economics*—That which is sacrificed to obtain anything.

In addition I have interviewed several men, not cost accountants, and found that almost unanimously they have the idea that cost represents actual expenditure.

Conception of the Trained Cost Expert

Now I know that this is not the conception of costs held by highly trained cost experts today, but because it is the one held by the majority of people with whom we have to deal and who must believe in and act on the reports which we submit, I am stressing the necessity for us to either invent a new term or be very particular to point out to all concerned, the enlarged scope of the word, when used in more than its primitive meaning.

As a report is of no more value than the use to which it is put and as to be used intelligently it must be understood, two very fundamental rules of cost accounting, it is extremely important that the executive receiving a report relating to "costs" thoroughly understand that it does not necessarily refer to actual expenditures. Unless this be done, much time may be wasted in arguments and valuable reports may be discredited.

It is altogether too easy for those of us who are familiar with the technical phases of cost accounting and familiar with the broad scope, that the word "cost" has assumed to forget that the other fellow does not know this also. Failure to talk in the other fellow's language is a frequent source of misunderstanding and trouble.

Sense of Actual Expenditures

Hereafter, when reference is made to "costs," it will be in the sense of actual expenditures, or definition No. 4, a sacrifice of something already procured.

They say "a rose by any other name would smell as sweet." That does not imply, however, that a stink weed would smell sweet if you called it a rose.

Now remembering the restricted definition of the word, let us see how some of the modern theories fit in. Take the matter of interest on investment, for example. If you get it right back it did not *"cost"* you anything, and yet as a means of comparison in certain cases it is an extremely valuable tool. What matter then whether it be a cost or not? What difference does it make, if it is useful? Let us forget for the time all question as to whether it be a cost or not and use it if we find it useful. Do we care anyhow, whether we get a cost or not, either in a narrow or a broad meaning of the word, so long as we get valuable information? Certainly not, so let us disregard this and get what we can regardless—but let the fact be known.

* Presented at the convention of the Cost Association of the Paper Industry, Feb. 19, 1929, at the Waldorf-Astoria Hotel, New York.

Similarly we may take the matter of using depreciation on a replacement value. This may be quite different from what we paid for the equipment and hence, in the narrow sense, is not an element of cost. Who cares, if by using it we assure the continued existence of our business, be prices what they may.

What We Wish to Secure as a Figure

After all, what is it we wish to secure as a figure on which to base sales? We want one that will not only assure the return of actual expenditures, but that will insure the continued life of the company and which, when the margin of profit has been added to make the sales price, will return a profit which we can safely hand out as dividends.

If we do this, it makes no difference whether this figure is a cost, in the sense of expenditure—or a cost plus reserves, which we feel reasonably sure, it is advisable to accumulate.

Take again, the matter of standard costs. We set a figure as standard at which we will charge, say, soda pulp to the papers. The actual price may be quite different and this difference thrown into the variance accounts.

Does then the "cost" of paper represent actual expenditures? Certainly not, and who cares? The use of standards is a useful means whereby we make certain analyses, which could not be made otherwise and their use is not only justified but the part of wisdom.

Suppose we were to get such costs, what would happen? We know, in the first place that this is impractical. What we call "actual costs" are but "best" estimates, but let us suppose we could get them. Let us say that in January we did get the cost of a certain grade of paper and that in April we received an inquiry for a similar lot. Would we go back and use the January costs blindly as a basis of bidding? Of course not. We would analyze it and see what changes had occurred in the meanwhile and revise this figure and that until in all probability the final result would not look like the January figure at all. Such costs are as water that has gone under the bridge. They are of no use to anyone. What we want to do is to look ahead and anticipate events, so as to steer a safe course. Not just look behind and see what has happened. What would you think of a guide, who in shooting a rapids watched only the trail of bubbles left by the boat and failed to cast his eyes in front? And yet that is exactly what the word "cost" in the narrow and popular sense implies.

Any clerk can assemble figures based on actual performances, so much pulp used, so much spent for labor, supplies and the like, and can even assemble and prorate them in a reasonable manner so as to tell the "cost" of a certain product or operation—it takes a superior intellect, however, to look ahead and pick and choose among the various methods; to provide for various contingencies and so assemble his figures that the final result will be a safe one on which to base sales.

Must Know Far More

To do this, such a man must know far more than the actual product; he must follow conditions in his industry and in business expenditures and means of assembling them. He must have an idea as to market conditions, both for raw materials and his product; he must follow conditions in his industry and in business in general—bank rates, commodity prices and general economics, and he must weave this knowledge into his figures so that when a sale is made, it is based on a figure that will assure the permanence of his business as well as a return of the cash outlay and a profit. No one, of course, can be perfect at this, but to the extent that he can achieve it lies his value to his company and his own success.

Is this getting a "cost"? Is he a "cost accountant"? Certainly not in the restricted sense of the word. He does not care for such costs and he rightly disregards them. He wants and gets something far bigger and more inclusive.

But the rub lies right here. He knows what he is getting and appreciates its value, but if the person to whom he presents it does not, what good is it? If his superiors have blind faith in him and take his figures as costs on his say so, well and good. But most superiors want to be shown. If they think what they get are costs and then find various contingencies included, unless they are advised, it either leads to useless arguments or the figures are discredited.

This idea of costs is obsolete. Let us forget it. Let us not attempt to present our figures as costs unless we make very sure that the enlarged meaning of the word is well understood or better yet, let us find some other term which cannot be confused with actual expenditures. In any event, when a new idea is presented let us not bother our heads as to whether the result gives a cost or not. We care not what it is, if it be useful, let us adopt it, regardless, and go on our way rejoicing.

Finch, Pruyn & Co. Make Safety Record

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., March 18, 1929.—Notices posted in the mill of Finch, Pruyn & Co. during the past week showed that only one accident resulting in lost time to the injured worker occurred at the plant in this city since January 1. Employees of the company are now enrolled in a safety campaign under the direction of Samuel Pruyn, general manager, and valuable prizes will be awarded to the departments making the best records. During 1928 only four accidents occurred to workers at the local plant and it is aimed to make the record this year even better. The local plant was tied with the St. Croix Paper Company, of Woodland, Me., for first place honors in a campaign sponsored by the National Safety Council for the first half of the year and with the International Paper Mill at Piercefield in a contest conducted for thirteen weeks in the fall by the Associated Industries of New York State.

The present no-accident record shows the number of days each department has operated without a lost time accident: Electrical crew, 1,002 days; pulp mill repairs, 370; paper mill repairs, 635; finishing room, 568; grinders and presses, 517; pulp handling, 472; boiler house, 54; paper machines and beaters, 234; wood handling, 139. Among the departments making new records are the paper mill repair room, finishing room and pulp handling room. The record of last year of only four lost time accidents was remarkable as in the best year previously there were thirty-nine accidents with a total of 486 days lost time. The only accident so far this year occurred early in January when an employee of the power house received an injury which incapacitated him for sixteen days. During the past fifty-four days no accidents have taken place.

For the ten years previous to 1928 there was at least one accident every month except in September of 1921 when the record was clear. In 1927 the company offered prizes to employees who offered suggestions that were adopted for the improvement of safety features. It is claimed by officials that accidents are not caused by lack of safeguards for machinery but are due to carelessness. Statistics show that in all industries seventy-five per cent of the accidents are caused by slippery floors or in the handling of material. It is claimed that it is easy to safeguard machinery but it is difficult to impress upon a workman the danger of dropping heavy products near the feet or other parts of the body. Mr. Pruyn, representing the pulp and paper division, is regional director of the National Safety Council and during last fall conducted a regional conference in Syracuse.

John T. Gamble Goes With Union Bag

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., March 16, 1929.—The Union Bag and Paper Corporation will within a short time have a new general superintendent in the person of John T. Gamble, who has been connected with various concerns in the papermaking industry for many years. He is well known in the United States and Canada besides being efficiently qualified to take over the important post which he will assume about April 1.

Higher Wages-Lower Costs*

By L. V Estes Incorporated—Industrial Engineers

In times of keen competition, cutting prices, and small profits the manufacturer naturally begins to scrutinize costs and the possibility of their reduction to increase net profits. Two ways are open:

Increasing Net Profit

(1) To increase sales. With the present surplus production this is costly and the returns uncertain to say the least.

(2) To reduce the cost of the product before it leaves the Mill. The investment is comparatively small, the returns certain, quick, and often surprisingly large.

Analyzing the possibilities of cost reductions, five groups or points of attack will be found: Material, waste, process, labor, burden

Labor Cost

Much has been done as to material, waste, process and burden; and much more could be said and accomplished in this respect, but due to the lack of time let us consider the item of labor cost only.

Years ago and in many cases today the first thought, when considering cost reduction, is to *"cut wages"*. The result, if it is carried out, usually is not up to expectations. Why? Dissatisfied employees, who feel that they are asked to sacrifice accustomed comforts to increase the profits and earnings of a more fortunate few.

More and more it is being realized in manufacturing circles that prosperity of Mill and nation are dependent on the mutual trust and understanding of employees and employer. Therefore the slogan should be: Pay higher wages, eliminate excess of labor, and thus reduce manufacturing costs.

This thought is not new. It is in the mind of every executive Mill Manager and Superintendent. However, these men being burdened with the thousand and one details of daily routine and the more outstanding features of waste, are unable to carry out their good intentions. You hire a doctor to cure your ills, a lawyer to protect your interests. Why not employ a reputable Industrial Engineer to assist you in the management of your Mill and to carry out and to solve the problems you have not the time to complete?

Before entering into a discussion of the ways and means to reduce labor costs by increasing wages, one thought must be brought out and remembered. There is no plan or system that can be applied in every mill without adapting it and changing it to suit local conditions. Therefore, a careful analysis of existing conditions is the first step to success in any mill.

What the Investigation Should Reveal

When starting in a department, and in principle this applies to the entire Mill, the investigation should reveal:

The number of employees, and the duties assigned to each.

Their hourly rates, the number of hours worked per day or week, and the length and frequency of rest periods, if any.

The relation of the department to other departments of the mill.

The methods of transportation and facilities for handling the product.

The flow of material through the department.

The amount, condition and location of equipment.

The method of operation.

And numerous other details.

A Correct Picture in Mind

At the completion of this study, the engineer must have the correct picture firmly fixed in his mind to enable him to proceed along the proper lines, and he will have become acquainted with the employees of the department which is of great importance in dealing with this very human element. Should the study reveal conditions making it difficult for an employee to accomplish the work assigned, it should be brought to the attention of the executive concerned immediately, and the necessary instructions issued by him to remedy such faults. Such action will help to increase the confidence of the employee in the Engineer, and level the road for the next step—making of time studies. Much has been published on this subject so that little need to be said here.

No time studies should be made unless the work-places and conditions surrounding them have been arranged to the best possible advantage obtainable under local conditions. Time studies, to give the most desirable results, should be made on an average workman, not the fastest nor the slowest.

Should be Explained to Foreman

The purpose of the study should be first explained to the foreman and then in his presence to each man to be observed. He should also be instructed neither to speed up or to slow down, but to work at his or her natural gait. It will be observed that for a short period the man will be self-conscious and either slow down or speed up, but if the study is of sufficiently long duration he will lapse into his accustomed speed.

Shorter studies are to be recommended for female employees, as the presence of an observer seems to cause them to become irregular and erratic in the performance of their task even if it has been familiar to them for years. After a sufficient number of time studies have been made and figured, we are ready for the establishment of a standard or allowed time for the operation under consideration. Often the engineer is told—you cannot set a standard for this, that, or the other operation. There is no operation being performed in any mill for which, after the proper studies have been made, a standard cannot be set. At times it is difficult and sometimes it is not desirable or advisable to set a standard, but if necessary it can be done.

Best Possible Time

The unit times recorded by time studies properly determined and totaled, will furnish what is known as the *"best possible time"*, in which a good operator, working under existing conditions, can perform a given job with the existing method and equipment. To establish the *standard* or *allowed time*, there are added certain percentages to cover fatigue and necessities of life, also an incentive allowance, the amount of which depends on the nature of the work, etc.

Determining from his first investigations the amount of product to be handled by certain operators for a certain period, and from his time study the amount of time required to perform the operation, the engineer can determine the number of operators required for this class of work. The difference between the present number of men employed, and the needed number represents the saving to the company. The extra number of men should be stricken off the pay roll or transferred to other departments where help is needed, in preference to hiring new outside help. No attempt on paying a premium should be made before the number of men have been reduced.

Meeting These Standards

How can the employees be induced to meet these standards? Through the assurance of increased earnings, i.e., through participation in the savings made for the *employer*, by the increased effort of the *employee*. Of the various plans of incentive wage payments in effect throughout the country, we believe that the 100 *per cent Premium Wage Plan* will give the most satisfactory results, and is by far the fairest for both management and labor.

COST SECTION

* Delivered at the convention of the Cost Association of the Paper Industry, Feb. 20, 1929, at the Waldorf-Astoria, New York.

Features of the Plan

The outstanding features of this plan are:

(1) The basis of computation in an *allowed time*.

(2) The employee is rewarded for increased effort by being paid for all *"time saved"* at his full hourly rate.

"Time saved" is the amount obtained by subtracting "actual time worked" from "allowed time".

(3) If an operator does not succeed in completing a given job within the allowed time, *he is not penalized directly.* That is—he is sure of getting his regular hourly or base rate whether or not he completes the job within the allowed time.

An employee who continually fails to make the premium should be shifted to other work or released.

(4) It is to be desired that each operator earn from 15 per cent to 25 per cent more than the average of his class. This means that from 15 per cent to 25 per cent of the productive hours are being saved for the company; that the output for a given length of time is increased, and that employees will want to stay with the company due to increased pay.

Instead of considering employees who are earning above the average pay, as being overpaid, the company should investigate the men who are not making a premium and find out the reason for their failure. If the allowed time is too low it should be adjusted so that premium can be made. If the employees are too slow or unfitted for the work they should be released or transferred elsewhere. Except in cases of obvious and serious error, however, the allowed time *must not be changed,* unless the method of operation is changed or the equipment improved.

(5) A spirit of fair dealing must be impressed upon the men throughout. The management must realize that employees who earn a premium by added effort and increased production are cheaper at 30 per cent greater wages than low priced workers, who have no interest in their work, or low producers who must be replaced frequently. Training new men is costly.

Reasons for the Plan

Some of the reasons for recommending this plan are:

(1) Being based upon a unit of time, the unit is not affected by fluctuations in the value of the dollar. If the wage rate per hour of a given class of operators goes up or down the company has a right to vary the base rates to correspond, but the standard unit times are not changed thereby.

(2) If an operation is simple or light enough to make possible the use of a cheaper grade of labor, this can be taken advantage of without any change in unit time.

(3) If a higher priced employee is forced to work on a simple operation temporarily, he is paid at his own base rate and no variation is necessary in the unit time.

(4) If several workers are required for a single operation the unit time set for that operation will automatically apply to the entire crew at their respective rates, thus eliminating the difficulty which arises in the adjusting of piece work schedules under similar conditions.

(5) The unit time permits the scheduling ahead of work on that basis throughout the mill and if desired the visualizing on a chart or in a schedule book in such a way that all departments and work places can be easily and centrally controlled through the office.

(6) Time tickets required in connection with this plan can be designed and adapted to furnish the Cost Department readily with all the detail costs and information so highly desirable from their viewpoint. They will also facilitate the recording of a perform ance record of each man for the entire year. Such a record renders valuable aid in selecting and promoting employees.

(7) The Competitive Spirit in men can be taken advantage of by posting daily in a conspicuous place in each department, the amount of premium earned by each man.

May be Modified and Adopted

The plant outlined above is the most desirable one, but, of course, can be modified and adapted to the conditions and requirements of the various departments throughout the Mill. The principle, however, remains the same.

Under properly constructed premium plan such as outlined, it has been found in many cases that the output per man per hour was doubled, and more; and the quality of output was improved. As a safeguard, however, the company should reserve the right to penalize employees for continuous defective work. If desired by the company, the amount of premium earned by any individual employee or group of employees can be limited to a certain percentage or any other distribution desired can be made of the savings, without changing the principle of the plan.

In connection with a premium wage plan it is desirable as well as advantageous to provide for a foreman's bonus. For this purpose it is most satisfactory to consider each department in the form of an independent business with the foreman as Manager and to let him draw his bonus on a basis of actual dollars and cents savings.

A Few of the Advantages

A few of the advantages of such a plan are as follows:—

(1) The foreman will be placed in a position where labor savings reflect directly to their own advantage, consequently each foreman will be on the alert to convert lost and idle time into productive time.

(2) The premium plan as applied to the workers will be recognized by the foremen as a valuable aid to them as well as to the company for reducing costs.

(3) The fact that the foremen's bonus is based upon labor cost rather than on labor hours will keep the foremen on the lookout for possible reductions in base rates.

(4) The premium will take the place of a regular base rate increase and will automatically adjust itself to the business conditions of the company. A good increase in wages can be realized by the foremen if business is booming and when the company can afford to pay for increased effort, while the rate will automatically return to the base in dull periods without resulting loss in morale.

Conclusion

In conclusion: The engineer engaged by a company should be given the fullest support and co-operation. He alone cannot produce maximum results. The management knows the process, the methods, and the local conditions. Through willing co-operation from both sides results can and will be obtained in savings of actual dollars impossible to realize by either party alone. Suggestions and recommendations by the Engineer should at least receive consideration and study, even if they should not be adopted.

He is there to help, to advise, and to criticize constructively, and should not be held guilty of presumption regardless of what his suggestion may be.

Part of the creed of the reputable industrial engineer is: "To keep the faith of the client he will not undertake what he knows to be beyond his ability; and that with respect to what he undertakes he will give conscientious service to the limit of his ability."

Associate Mills to Confer In New London

HOLYOKE, Mass., March 11, 1929.—The Associate Mills, Crocker-McElwain Company and Chemical Paper Manufacturing Company, Holyoke, Mass., have just announced that their Annual Mill and Merchant Conference will be held this year at the Hotel Griswold, New London, Conn., on June 27, 28, and 29. This is a decided change from the practice of holding these annual conferences at Holyoke, Mass., during the early part of September, and is due to recognition being given to the fact that the Fall buying season starts immediately after Labor Day and therefore the many mill conferences which have been held at this time greatly interfere with the attention which should be given to the opening of the Fall buying season. Further announcement will be made of the program given which will be carried out at the forthcoming conference.

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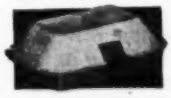
PAPRUS DISHES are one-piece—rigid as wood—cost less than paper! *Moulded* from pulp without folds or staples. Sterilized. Waterproof. Leakproof. These strong selling points help salesmen sell more Paprus dishes to grocers, butchers and delicatessen stores. You can increase your business with Paprus Dishes. Write for prices.

Paprus Dishes used as covered container



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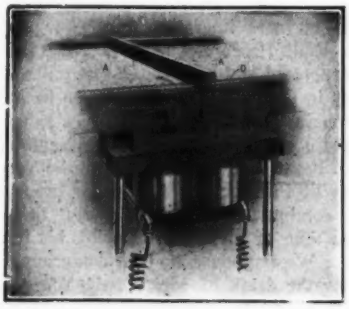
Are you making paper for insulating purposes? If so, our *Type B Iron Extractors* are a necessary part of your equipment.



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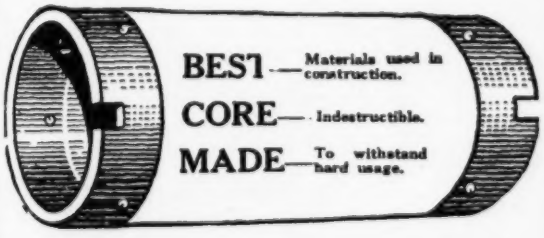

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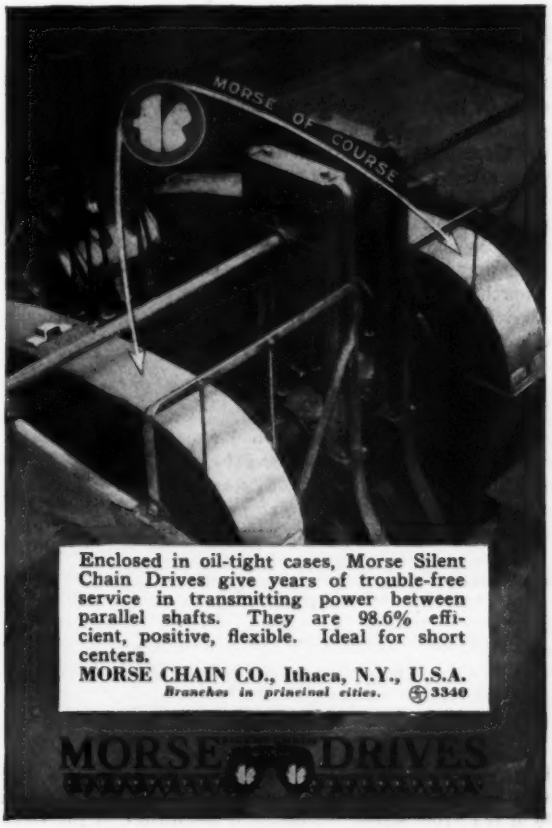

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Obituary

Walter D. Uptegraff

NIAGARA FALLS, N. Y., March 18, 1929.—Walter D. Uptegraff, president of the Niagara Wall Paper Company of Niagara Falls, N. Y., and the Pittsburgh Wall Paper Company of New Brighton, Pa., as well as the Defiance Paper Company of Niagara Falls, N. Y., died in Niagara Falls, N. Y., on February 17, after a brief illness. He was born in Pittsburgh on February 18, 1865, but had resided for the last nine years at Niagara Falls, N. Y., where he had substantial business interests. Mr. Uptegraff incorporated the Pittsburgh Wall Paper Company at New Brighton, Pa., in 1898. He incorporated and constructed the mills of the Defiance Paper Company in the year 1909 and later on he built the present mill of the Niagara Wall Paper Company in 1916. He had been president of these companies since their inception.

Mr. Uptegraff began his business life with the Westinghouse Air Brake Company of Pittsburgh, Pa., and has been associated with that company continuously for fifty years, being one of the directors at the time of his death. During his business association with George Westinghouse, he held many important executive positions. After the death of Mr. Westinghouse he was one of the executors of his estate. He at one time was secretary of the Philadelphia Company, vice president of the Westinghouse Machine Company, president of the Nernst Lamp Company, president of the Pittsburgh Electric Specialties Company, president of the Pittsburgh Glass Company, a member of the board of directors of the Westinghouse Electric and Manufacturing Company, all of Pittsburgh, Pa., and president of the Union Switch and Signal Company of Swissvale, Pa. At the time of his death he was chairman of the board of directors of the Union Switch and Signal Company, also a director of the Westinghouse Air Brake Company.

Samuel Connell

PORTLAND, Ore., March 16, 1929.—Samuel Connell, treasurer of the Northwest Pulp and Paper Company, whose home was in Portland, Ore., for more than fifty years, died there March 8. He was 64 years of age, a Canadian by birth, but came to Portland to live when a child.

Mr. Connell's earlier associations were with lumber interests. He was vice president of the Lewis and Clark Exposition held in Portland in 1905, and has been actively associated in civic and community affairs during his entire adult life. He was a prominent Mason and a charter member of the local Rotary. Funeral services were under the auspices of the Centenary-Wilbur Methodist Church, of which he was a member.

Surviving are his widow, Mrs. Adah Connell, two daughters, five brothers and two sisters.

Willard Hitchcock

GLENS FALLS, N. Y., March 17, 1929.—Willard Hitchcock, seventy-two, paper manufacturer and former partner of former Governor John A. Dix, died today in his home, No. 68 Ridge streeet. He had been in ill health several years.

Born in the town of Moreau, Saratoga County, Hitchcock passed his early years in the former Glens Falls Paper Company plant. In 1892, he and former Governor Dix, Isaac C. Blandy and D. C. Tronsden organized the American Woodboard Company, of which he was secretary and treasurer. He also was president of the Blandy Paper Company, of Schuylerville for several years. He leaves his wife, Harriet R. Hitchcock, a sister, Mrs. Eugene L. Ashley of Glens Falls and a brother, Alaric Hitchcock, of Mount Vernon.

New Envelope Co. Busy at Dayton

DAYTON, Ohio, March 18, 1929.—Manufacture of Government envelopes and newspaper wrappers is continuing at a satisfactory rate at the Front street establishment taken over by the International company. Insamuch as the contract involves upwards of $30,000,000 for the next four years, the industry will prove to be one of the most substantial in the city.

Little or no change has been made in the personnel of the company and Howard F. Marston is the general manager. He served as president of the Mercantile Corporation when it held the contract for a number of years.

The International Company purchased approximately $400,000 worth of new machinery for the manufacture of stamped envelopes, it is understood, with the understanding that only part of it would be used if it was decided that present equipment is sufficient.

The Mercantile Corporation maintained four buildings on Front street and vicinity with approximately 240,000 square feet of floor space, and many improvements have been installed in addition to the new type of envelope machines.

The International Envelope Company is employing more than 1,000 persons and the business of the concern moved as smoothly after the first of the year, when the contract was taken over, as though the company had held the contract for a score of years.

The supply of envelope paper used in manufacturing envelopes and wrappers increases annually, depending upon the demand from the public which, of course, devolves around prosperity.

Decorated Specialty Paper Co. To Move

HOOSICK FALLS, N. Y., March 16, 1929.—The Decorated Specialty Paper Manufacturing Company, which has been carrying on operations in the Walloomsac plant of the Stevens & Thompson Paper Company since last May, will remove its business and equipment to Michigan in the near future, according to E. B. Brewster, president. The company has accepted an offer from the Filer Fiber Corporation of Fiber City, Mich., to move its plant to that city and it is planned to start moving equipment about June 1. The firm specializes in the making of decorated wrapping paper which has found a ready market in the West. The firm moved to this place from Skaneateles a little over a year ago and has used several tons of pulp daily from the mills of the Stevens & Thompson Paper Company in turning out its many orders. It is understood that the decision to locate in the West was brought about by the fact that nearly ninety per cent of the firm's product was marketed in that section which necessitated considerable expense in haulage. It was announced that the concern would take a number of their skilled workers to the new location.

Boston Paper Market Active

BOSTON, Mass., March 18, 1929.—In the paper market here the high grade lines are in active demand. Apparently the demand is widespread, because representatives of paper mills are obliged to wait ten days or so before they get delivery on their orders. Some months ago there was no delay, showing that the volume of business has increased greatly. This season of the year, dealers expect more interest in paper and this interest seems to be shown at present. Kraft is moving well also, and there appears to be a better feeling with the advance in prices of No. 2 grades.

The feeling continues to grow that the price of box board will advance. While it has been possible recently to obtain chip board at $32.50, at least one concern will not sell for less than $35, and a quotation of $37.50 is also made.

The market has improved in old papers, bagging and rags. Prices are steady and the demand is rather evenly distributed among the grades of stock.

Boston Paper Trade Association to Meet

BOSTON, Mass., March 18, 1929.—The 43rd Annual Meeting of the Boston Paper Trade Association will be held on Wednesday evening, March 20, at the Algonquin Club. The speaker of the evening will be Henry I. Harriman, who will talk on "Some Aspects of Boston's Transportation and Park Problem," which should prove an interesting subject, as similar conditions as those of Boston exist in every city and town today.

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Prompt deliveries made from stocks in
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It is freely applied in every Heller & Merz transaction. Not as a studied policy. Rather, because this organization is genuinely interested in giving to each transaction a pleasant, as well as a profitable, character.

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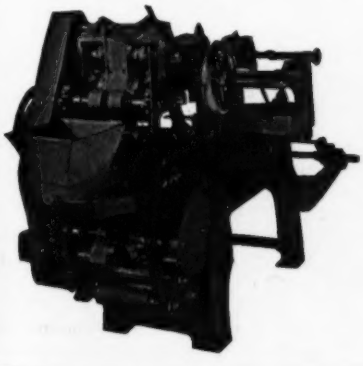

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NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING MARCH 16, 1929

SUMMARY

Cigarette paper	1,213 cs.
Wall paper	19 bls., 2 cs.
Paper hangings	87 bls.
Hanging paper	5 cs.
Painted paper	26 cs.
Parchment paper	3 cs.
Printing paper	136 bls., 18 cs.
Packing paper	30 bls.
Wrapping paper	20 cs.
Filter paper	20 bls., 214 cs.
Transfer paper	15 cs.
Decalcomania paper	18 cs.
Tissue paper	35 cs.
Metal coated paper	7 cs.
Surface coated paper	170 cs.
Coated paper	8 cs.
Photo paper	185 cs.
Colored paper	49 cs.
Writing paper	4 cs.
Miscellaneous paper	9 pkgs., 309 cs.

CIGARETTE PAPER

F. Murray Hill, Californie, Bordeaux, 5 cs.
American Tobacco Co., Californie, Bordeaux, 200 cs.
American Tobacco Co., Schodack, Bordeaux, 400 cs.
De Manduit Paper Corp., Schodack, St. Nazaire, 608 cs.

WALL PAPER

F. J. Emmerich, Albertic, Liverpool, 4 bls.
F. J. Emmerich, Amasis, Hamburg, 6 bls., 1 cs.
Schmidt & Pritchard, Amasis, Hamburg, 1 ble.
Globe Shipping Co., Amasis, Hamburg, 7 bls.
Heemsoth, Basse & Co., Muenchen, Bremen, 1 ble., 1 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., Minnewaska, London, 63 bls.
W. H. S. Lloyd & Co., Albertic, Liverpool, 13 bls.
A. C. Dodman, Jr., Inc., Antonia, Liverpool, 5 bls.
Whiting & Patterson Co., Inc., Olympic, Southampton, 6 cs.

HANGING PAPER

R. F. Downing & Co., Paris, Havre, 2 cs.
F. J. Emmerich, Paris, Havre, 3 cs.

PAINTED PAPER

A. L. Diament & Co., De Grasse, Havre, 14 cs.
American Exchange Irving Trust Co., De Grasse, Havre, 12 cs.

PARCHMENT PAPER

F. C. Strype, Patagonier, Antwerp, 3 cs.

PRINTING PAPER

I. I. Bernitz, Egypt Maru, Hamburg, 23 bls.
Nepaco Paper Co., Collamer, Havre, 16 cs.
Perkins, Goodwin & Co., Amasis, Hamburg, 113 bls.
J. H. & G. B. Siebold, Amasis, Hamburg, 2 cs.

PACKING PAPER

Walker, Goulard, Plehn Co., Egypt Maru, Hamburg, 30 bls.

WRAPPING PAPER

F. C. Strype, Arabic, Antwerp, 2 cs.
Birn & Wachenheim, Arabic, Antwerp, 18 cs.

FILTER PAPER

E. Fougera & Co., Californie, Bordeaux, 60 cs.
A. Giese & Son, Olympic, Southampton, 20 bls.
J. Manheimer, Olympic, Southampton, 154 cs.

TRANSFER PAPER

F. L. Kramer, Muenchen, Bremen, 15 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Albertic, Liverpool, 9 cs. (duplex).
L. A. Consmiller, Muenchen, Bremen, 9 cs.

TISSUE PAPER

Atlantic Forwarding Co., Egypt Maru, Hamburg, 11 cs.
F. C. Strype, Hjelmaren, Helsingfors, 12 cs.
B. F. Drakenfeld & Co., Albertic, Liverpool, 12 cs.

METAL COATED PAPER

Hensel, Bruckman & Lorbacher, G. Washington, Bremen, 7 cs.

SURFACE COATED PAPER

W. Berch, Arabic, Antwerp, 3 cs.
Gevaert Co. of America, Arabic, Antwerp, 167 cs.

COATED PAPER

Quality Art Uovelty Co., Amasis, Hamburg, 8 cs.

PHOTO PAPER

Gevaert Co. of America, Arabic, Antwerp, 185 cs.

COLORED PAPER

S. Gilbert, G. Washington, Bremen, 10 cs.
C. W. Williams, Arabic, Antwerp, 12 cs.
Borden Riley Paper Co., Arabic, Antwerp, 4 cs.
J. J. Shore, Muenchen, Bremen, 16 cs.
M. Ward, Inc., Muenchen, Bremen, 7 cs.

WRITING PAPER

Japan Paper Co., De Grasse, Havre, 1 cs.
Globe Shipping Co., De Grasse, Havre, 1 cs.
S. Stern Stiner, De Grasse, Havre, 2 cs.

MISCELLANEOUS PAPER

F. J. Emmerich, De Grasse, Havre, 9 pkgs.
Standard Products Corp., De Grasse, Havre, 58 cs.
Public National Bank, Hellen, Marseilles, 12 cs.
Canson & Montgolfier, Paris, Havre, 2 cs.
Distinctive Writing Paper Co., Paris, Havre, 9 cs.
Standard Products Corp., Paris, Havre, 186 cs.
P. J. Schweitzer, Paris, Havre, 17 cs.
Sussfield, Lorsch & Schimmel, Paris, Havre, 23 cs.

RAGS, BAGGINGS, ETC.

American Express Co., Saco, Antwerp, 24 bls. rags.
Whaling Waste Products Co., Saco, Antwerp, 159 bls. rags.
Castle & Overton, Inc., Patagonier, Antwerp, 62 bls. rags.
American Exchange Irving Trust Co., Patagonier, Antwerp, 80 bls. thread waste.
Manufacturers Trust Co., Egypt Maru, Hamburg, 20 bls. rags.
I. Horwitz, Egypt Maru, Hamburg, 23 bls. rags.
Overton & Co., Giulia, Venice, 75 bls. rags.
American Express Co., Ausonia, Southampton, 57 bls. rags.
Banco Com'l Italiane Trust Co., Tijuca, Genoa, 91 bls. bagging.
Castle & Overton, Inc., G. Washington, Bremen, 92 bls. rags.
J. Cohen & Son, Antonia, Liverpool, 20 bls. rags.
American Exchange Irving Trust Co., Caucasier, Antwerp, 100 bls. flax waste.
National City Bank, Albertic, Liverpool, 63 bls. bagging.
Goldman, Sachs & Co., Muenchen, Bremen, 65 bls. bagging.
Goldman, Sachs & Co., Muenchen, Bremen, 120 bls. rags.
Castle & Overton, Inc., Muenchen, Bremen, 49 bls. rags.
E. J. Keller Co., Inc., Muenchen, ——, 33 bls. rags.
Van Oppen & Co., Collamer, Dunkirk, 59 bls. rags.
Royal Manfg. Co., Californie, Havre, 24 bls. thread waste.
Castle & Overton, Inc., Californie, Havre, 75 bls. rags.
Brown Bros. & Co., Californie, Havre, 96 bls. new cuttings.
Interstate Trust Co., Californie, Havre, 54 bls. rags.
Amsinck, Sonne & Co., Inc., Californie, Dunkirk, 35 bls. rags.
E. J. Keller Co., Inc., Schodack, ——, 60 bls. rags.
A. W. Fenton, Inc., Schodack, Bordeaux, 113 bls. rags.
W. Schall, Amasis, Hamburg, 37 bls. jute card waste.
Interstate Trust Co., Amasis, Hamburg, 30 bls. rags.
Standard Bank of So. Africa, Amasis, Hamburg, 16 bls. rags.
Whaling Waste Products Co., Bellepline, Antwerp, 116 bls. jute waste.
B. D. Kaplan, Bellepline, Antwerp, 9 bls. rags.
I. Hinerfeld, Bellepline, Antwerp, 5 bls. rags.
International Purchasing Co., Bellepline, Antwerp, 65 bls. bagging.
Brown Bros. & Co., Bellepline, Antwerp, 46 bls. rags.
Castle & Overton, Inc., Bellepline, Antwerp, 238 bls. rags.
A. Bloch, Bellepline, Antwerp, 98 bls. bagging.
Equitable Trust Co., Bellepline, Antwerp, 11 bls. flax thread waste.
Castle & Overton, Inc., Bordeaux Maru, Japan, 35 bls. rags.
Castle & Overton, Inc., Alesia, Egypt, 60 bls. rags.
Castle & Overton, Inc., Mexico, Mexico, 18 bls. rags.

OLD ROPE

W. Schall & Co., Hellen, Marseilles, 59 coils.
Brown Bros. & Co., Collamer, Havre, 185 bls.
Brown Bros. & Co., Amasis, Hamburg, 48 coils.

CASEIN

A. Hurst & Co., De Grasse, Havre, 67 bags.
Champion Coated Paper Co., Pan America, B. Ayres, 1,081 bags.
Kalbfleisch Corp., Pan America, B. Ayres, 884 bags.
Equitable Trust Co., Pan America, B. Ayres, 834 bags.

WOOD PULP

Bulkley, Dunton & Co., Hjelmaren, ——, 1,500 bls. wood pulp.
E. J. Keller Co., Inc., Muenchen, ——, 651 bls. wood pulp.
Persons & Weidhorn, Arabic, Antwerp, 34 cases wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING MARCH 16, 1929

Guaranty Trust Co., Exmouth, Bari, 139 bls. rags.
Interstate Trust Co., Californie, Dunkirk, 115 bls. rags.
National Bank of Commerce, Californie, Dunkirk, 118 bls. rags.
Katzenstein & Keene, Inc., Schodack, Bordeaux, 174 bls. rags.
A. W. Fenton, Inc., Schodack, Bordeaux, 622 bls. rags.
Castle & Overton, Inc., Schodack, Bordeaux, 562 bls. rags.
Tradesmans National Bank, Schodack, Bordeaux, 234 bls. rags.
E. J. Keller Co., Inc., Schodack, ——, 83 bls. rags.
Katzenstein & Keene, Inc., Schodack, St. Nazaire, 557 bls. rags.
D. I. Murphy, Schodack, St. Nazaire, 171 bls. rags.
V. Galaup, Schodack, St. Nazaire, 50 bls. rags.
Castle & Overton, Inc., Nitonian, Ireland, 72 bls. rags.
Castle & Overton, Inc., Boston City, England, 164 bls. rags.
Castle & Overton, Inc., Sachsen, Germany, 69 bls. rags.
Castle & Overton, Inc., J. Skinner, Germany, 210 bls. rags.
Castle & Overton, Inc., Hannover, Germany, 74 bls. rags.
E. J. Keller Co., Inc., Saco, ——, 6 bls. rags.
E. J. Keller Co., Inc., Beemsterdyk, ——, 81 bls. rags.
E. J. Keller Co., Inc., Quaker City, ——, 29 bls. rags.

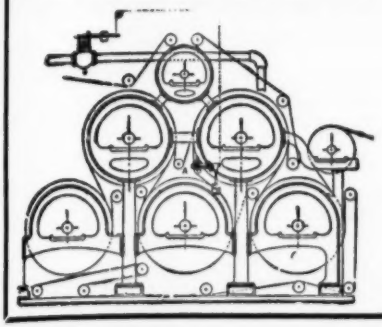
BOSTON IMPORTS

WEEK ENDING MARCH 16, 1929

Parsons & Whittemore, Inc., Hjelmaren, Stockholm, 240 bls. sulphite.
Scandinavian Pulp Agency, Inc., Hjelmaren, Gothenburg, 6,066 bls. kraft pulp.
Scandinavian Pulp Agency, Inc., Hjelmaren, Gothenburg, 1,497 bls. sulphite.
J. Andersen & Co., Hjelmaren, Gothenburg, 750 bls. sulphite.
Price & Pierce, Ltd., Hjelmaren, Gothenburg, 450 bls. sulphate.
E. M. Sergeant & Co., Hjelmaren, Gothenburg, 299 bls. dry soda pulp.
Kidder, Peabody Accep. Corp., Pipestone County, Havre, 929 bags casein, 40,640 kilos.
Phillips Book Stores, Pipestone County, Havre, 8 cs. paper.
Castle & Overton, Inc., Pipestone County, Havre, 26 bls. rags.
A. Bloch & Co., Pipestone County, Havre, 239 bls. strings.
A. Bloch & Co., Pipestone County, Havre, 27 bls. rags.

(Continued on page 76)

The Pickles Drying Regulator



WE ARE SAFE IN OUR PROPOSITION

YOU'LL MAKE NO MISTAKE IN ACCEPTING IT

Pickles Drying Regulator

will do everything we claim for it and more. The test costs you nothing until you are satisfied. Many mills tried one and now have every machine equipped. Write for list of users and other information.

W. F. PICKLES **Buckland, Conn.**

The B Co.-INC.

QUALITY PULPS

IMMEDIATE DELIVERY FROM DOCK

FORSHAGA — **"FORSHAGA" Bleached Sulphite**

KRAFT HURUM NORWAY SPECIAL — **"HURUM SPECIAL" Extra Strong Kraft**

KOOS BAC — **"BAMBLE" Extra Strong Kraft**

Fresh Monthly Consignments from Abroad—No Closed Winter Season

The Borregaard Company
Incorporated
200 FIFTH AVENUE NEW YORK, N. Y.

THE DRAPER FELTS

All kinds and styles of Felts for all kinds and styles of Papers.

Write us about your Felt problems and let us help you reduce your Felt Costs—we will call anywhere at any time.

DRAPER BROS. COMPANY
CANTON, MASS.
Woolen manufacturers since 1856

EASTWOOD
FOURDRINIER-CYLINDER-WASHER
WIRES

EASTWOOD WIRE CORPORATION, BELLEVILLE N.J. U.S.A.

Imports of Paper and Paper Stock

(*Continued from page 74*)

Bank of Commerce & Trust Co., Pipestone County, Havre, 296 bls. rags.

Hollingsworth Vose Co., Pipestone County, Havre, 89 bls. rags.

W. Schall & Co., Pipestone County, Havre, 102 bls. bagging.

Dominion Bank, Pipestone County, Havre, 11 bls. rags.

International By Products Co., Pipestone County, Dunkirk, 212 bls. flax waste.

Brown Bros. & Co., Pipestone County, Dunkirk, 83 coils old rope.

True & McClelland, Pipestone County, Dunkirk, 90 bls. rags.

W. C. Jones, Inc., Pipestone County, Dunkirk, 92 bls. rags.

S. H. Waldstein, Pipestone County, Dunkirk, 240 bls. rags.

Salter Fils, Pipestone County, Dunkirk, 25 bls. rags.

Castle & Overton, Inc., Wytheville, Holland, 112 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING MARCH 16, 1929

Congoleum Nairn Co., Collamer, Dunkirk, 283 bls. rags.

Congoleum Nairn Co., Bellepline, Antwerp, 15 bls. rags.

Congoleum Nairn Co., Bellepline, Antwerp, 226 bls. bagging.

S. Shapira, Bellepline, Antwerp, 64 bls. rags.

National City Bank, Schodack, Bordeaux, 203 bls. rags.

NORFOLK IMPORTS

WEEK ENDING MARCH 16, 1929

Darmstadt, Scott & Courtney, Bellepline, Antwerp, 80 bls. bagging.

Bank of New York, Bellepline, Antwerp, 161 bls. bagging.

British American Tobacco Co., Bellepline, Antwerp, 31 cs. printed cigarette wrappers.

F. I. Brown Addresses Paper Salesmen

There was another excellent attendance at the regular weekly luncheon and meeting of the New York Division of the Salesmen's Association of the Paper Industry, held at the Canadian Club, Hotel Belmont, New York, last Monday.

S. C. Knode, president of the association, was in the chair and among the guests was Robert T. Houk, Jr., vice president in charge of the Miami Valley Division. Mr. Knode introduced the speaker scheduled for the occasion, F. I. Brown, of the Barrington Associates.

Mr. Brown took as his subject "Militant Business" and dealt at considerable length with the methods and problems of sales research. He expressed the view that the salesman of the future would be one who thoroughly understands merchandising and marketing in order to be able to sell "Profits." He said that research was absolutely necessary to meet the many emergencies which arise.

Research work in industry was thoroughly explained by Mr. Brown, who declared that the concerns making most use of this up to date method of investigation were mostly the newer industries, such as the aeroplane, radio and automobile trades. He illustrated his interesting and informative address with a colored allegorical map.

Dr. E. O. Merchant, of the Paperboard Industries Association; Paul S. Hanway, secretary of the American Waxed Paper Association and Douglas A. Crocker, secretary of the Salesmen's Association of the Paper Industry, took part in the discussion which followed.

Du Pont Methylene Blue N

The Dyestuffs Department of E. I. du Pont de Nemours & Co. has just added to its line of basic blues, Du Pont Methylene Blue N. This color has been developed especially for printing cotton, rayon and silk, and is of importance because of its brilliant greenish shade and its good solubility resulting in especially good working properties. It also is suitable for application on chrome tanned leather, may be used for printing inks, stamp pads and wall paper lakes and to some extent on paper for dyeing bright blues on tissue, wrapping and other papers when fastness to light is not a factor.

Fort Howard Stockholders Meeting

GREEN BAY, Wis., March 14, 1929.—At the annual meeting of stockholders of the Fort Howard Paper Company, held at the company's offices on February 20, R. M. Carson, manager of sales, was elected a director of the company.

A. E. Cofrin, president of the company, presided at the meeting and reported the excellent progress made by the company during the past year both in sales and earnings. The annual statement shows a very favorable financial position, the company having no notes outstanding or bonded indebtedness.

Take Action on News Print Investigation

WASHINGTON, D. C., March 20, 1929.—The Federal Trade Commission on Monday of this week took action in connection with the Senate resolution calling upon the Commission to make an investigation of the newsprint situation especially in regards to supplies to small daily and weekly newspapers.

The Commission referred the resolution, in its routine way, to the Chief Examiner of the Commission who is in charge of the Legal Division. Herbert L. Anderson, the Chief Examiner will therefore be responsible for the investigation. This means that the Commission feels that the investigation is more from the legal than the economic angle otherwise it would have been referred to the Economic Division of the Commission.

In the near future Mr. Anderson will place someone in direct charge of this investigation who will act under his direction and at that time he will also appoint attorneys and investigators for the survey.

Handled in a routine way an investigation of this kind is begun by compiling all available information, following which agents are sent into the field. A report is then written and submitted to the Commission for its action. All of this takes months to complete. When the Commission took action on Monday it made no special suggestions as to how the investigation should be handled and for this reason it is assumed that it will follow the regular routine which is as outlined above.

Japanese Paper Production in 1928

WASHINGTON, D. C., March 19, 1929.—The Japanese Paper Manufacturers' Association reports a total output of 652,877 short tons and sales of 646,299 tons by the Association mills during 1928, the former figure representing an increase of 77,120 tons and the latter of 80,515 tons over 1927. Last year's production comprised 257,581 tons of newsprint paper, 95,127 tons of best grade printing papers, 75,246 tons of ordinary printing papers, 41,662 tons of wrapping paper, 52,368 tons of imitation "torinoko" paper, and 130,893 tons of other classes of paper. Consumption by the mills is reported as 315,359 tons of chemical pulp and 235,031 tons of mechanical pulp, 12,808 tons of rags, 10,158 tons of straw, and 32,260 tons of waste paper. 240,180 tons of chemical pulp and 230,679 tons of mechanical pulp are reported as being manufactured in the mills' own plants.

Lagerloef Trading Co.'s Unique Calendar

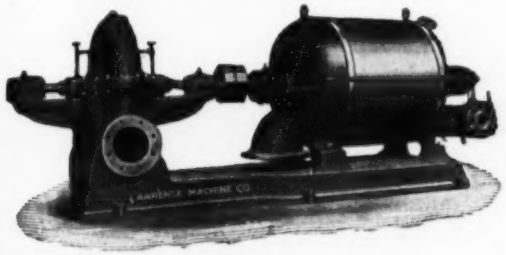
The Lagerloef Trading Company, Inc., of 52 Vanderbilt Avenue, New York, have just issued a unique permanent calendar, of great strength and durability. The Lagerloef Trading Company are sole agents in the United States, Canada, Cuba and Mexico, for the Finish Cellulose Association, of Helsingfors, Finland; also sole agents in the United States, Canada and Cuba for the Finnish Woodpulp Union, of Helsingfors, Finland.

Horizontally Split Casing Double Suction Pumps

LAWRENCE PUMPS

The name protects and guarantees you satisfaction.

We are the original designers and builders of the LAWRENCE PUMP.



Lawrence pumps for all conditions and services. Forty-four years of practical experience with centrifugal pump development places us among the leaders. Our efforts have been rewarded by the acceptance of our product in general.

Thousands of installations and the successful performance of our pumps should be sufficient proof of our ability to handle your pumping problems. Our engineering force is at your command.

Have only Lawrence Pumps, manufactured by the

Lawrence Machine Company

361 Market St. Lawrence, Mass.

The

ST. REGIS PAPER COMPANY

Daily Capacity
525 TONS

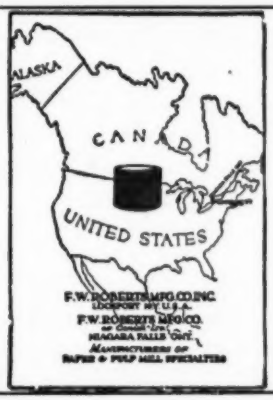
Newsprint
Catalog and Directory Papers
Fibre Wrapping Papers
Packers Oiled Manila
Specialties

General Sales Office

15 Broad St., New York

Farmers' Bank Bldg.
Pittsburgh, Pa.

B U R R S



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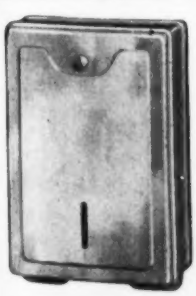

GRIFFITH-HOPE

Dispensing Cabinets
AND
Fixtures
ARE
The STANDARD of the PAPER TRADE
For Towels, Toilet, Napkins, Etc.

GRIFFITH-HOPE CO., West Allis, Wisc.

Paper Mill Stocks and Bonds

Quoted by Taylor & White, 45 Wall street, New York City, to whom all inquiry for quotations on these or any other Securities is referred.

BONDS	BID	ASKED
Abitibi Power & Paper 5s, 1943	90	91
Abitibi Power & Paper 6s, serially to 1934	100	102
American Writing Paper 6s, 1947	81	87
Bastrop Pulp & Paper 6½s, 1940	103	105½
Bedford Pulp & Paper 6½s, 1942	97	100
Belgo-Canadian Paper 6s, 1943	100	103
British-Columbia Pulp & Paper 6s, 1950	89	92
Brown Paper Mills Serial 6s, 1941	97	100
Brown Company 5½s, 1946	98	101
Bryant Paper 6s, 1942	98	101½
Canadian Paper Board 7s, 19337	97	99½
Cape Breton Pulp & Paper 6s, 1932	103	...
Celotex Company 6s, 1929	95	99
Celotex Company 6½s, 1939	100	102
Celotex Company of Chicago, Debenture 6s, 1936	95	98
Central Paper Company Serial 6½s, 1942	86	89
Central Paper 7s, 1934	78	...
Champion Coated Paper Serial 6½s, 1934	100	...
Champion Coated Fibre Notes 6s, 1941	100	102
Champion Fibre Notes 6s, 1941	100	102
Champion Fibre Notes 8s, 1930	95	...
Champion Paper Corp. 6s, 1945	95	98
Container Corp. of America Debenture 6s, 1936, ex-warrants	101	104
Continental Paper Products 6½s, 1943	90	99
Cornell Wood Products 7½s, 1937	103	...
Crown Willamette 6s, 1951	101	102
Dells Paper & Pulp Serial 6s, 1938	95	98
Dixon Board Mills Serial 6s, 1942	80	...
Donnaconna Paper 5½s, 1948	93	...
Eastern Manufacturing Co. 7s, 1938	97	100
Escanaba Paper Serial 6s, 1939	98	100
Escanaba Paper 6½s, 1935	96	99
Filer Fibre Serial 7s, 1935	90	95
Fort Irange Paper 7s, 1942	101	...
Fort William Paper 6s, 1946	100	104
Fraser Company 6s, 1950	103	105
Hammermill Paper Serial 6s, 1939	100	...
Hawley Pulp & Lumber 6s, 1946	96	...
Hawthorne Paper Company 6s, 1937	80	...
Hoberg Paper & Fibre 7s, 1937	94	97
Industrial Fibre Corp. Debenture 8s, 1933	100	...
Itasca Paper & Prairie River Power Serial 5½s, 1938	99½	...
Itasca Paper & Prairie River Power Serial 6s, 1938	99	...
Jessup & Moore First 6s, 1945	83	90
Kalamazoo Vegetable Parchment 6s, 1938	99	101
Lake Superior Paper 6s, 1941	105	108
Marathon Paper Mills Serial 5½s, 1942	99	101
Marinette & Menominee 7½s, 1936	103	105
Mead Pulp & Paper 5% Notes Serially, 1937	95	100
Mead Fibre 7s, 1937	97	101
Minnesota Ontario Paper Serial 6s, 1945	97½	100
Murray Bay Paper Serial 6½s, 1947	102	105
Munissing Paper Serial 6s, 1936	98	...
Nekoosa Edwards Paper 6s, 1928-42	96	...
Ontario Pulp & Paper 6s, 1931	108½	110½
Orono Pulp & Paper 6s, 1943	99	...
Orono Pulp & Paper 5s, 1941	96½	...
Oswego Falls Corp. 6s, 1941	99	102
Parker-Young Company 6½s, 1944	98	100
Paterson Parchment Paper 6s, 1938	101	103
Penobscot Chemical Fibre 6s, 1942	102	105
Port Alfred Pulp & Paper 5½s, 1947	98	100
Price Brothers 6s, 1943	105	...
Provincial Paper 5½s, 1947	98½	...
Queen City Paper 7s, 1933	98	...
River Raisin Paper 6s, 1936	98	100
Riordan Pulp & Paper 6s, 1942	102	104
Rolland Paper 6s, 1937	99	101
St. Croix Paper Serial 5s, 1937	99	...
St. Helen Pulp & Paper 6½s, 1931	99	102
St. Maurice Valley Corp. 6s, 1945	101	104
St. Maurice Valley Corp. 5½s, 1947	98½	100½
St. Regis Paper of Canada 6s, 1931	100	101½
St. Regis Paper of Canada 6½s, 1934	100	102
Smith (Howard) Paper Mills 7s, 1941	104	106
Spanish River Pulp & Paper 6s, 1931	108	110
Stevens-Thompson Paper 6s, 1942	94	96
Taggart Brothers 6s, 1944	95	100
Tait Paper & Color Industries 6s, 1934	88	92
Ticonderoga Pulp & Paper 5s, 1930	94	...
Ticonderoga Pulp & Paper 6s, 1940	100	102
Tomahawk Kraft Paper 6s, 1938	98	...
Tomahawk Pulp Paper 7s, 1932	99	...
Tonawanda Paper 5½s, Series 1941	99	102
Union Bag & Paper Power 6s, 1932	98	100
United Wall Paper Factories 6s, 1947	96	99
Warren (S. D.) Company 6s, 1945	103	105
Watab Paper 6½s, 1942	102	...
Waterway Paper Products 6s, 1931	100	101½
Wayagamack Pulp & Paper 6s, 1951	103	105
Westfield River Paper Serial 7s, 1943	89	93
Whitmer-Parson Pulp & Lumber 8s, 1938	20	25
Whitaker Paper 7s, 1942	108	110

STOCKS	BID	ASKED
American Box Board, Pfd.	9¼	10¼
American Box Board, Com.	9¼	10¼
Am. Tissue Mills, 7% Pfd.	90	93
British Columbia P. & P. Pfd	65	75
Brompton Pulp & Paper, 8% Pfd.	100	...
Champion Fibre, 7% Pfd.	108	110
Diem & Wing, 7% Pfd.	92	97
Eastern Mfg. Co. 1st Pfd.	55	...
Great Northern Paper, Com.	75	78
Hammermill Paper, new 6% Pfd.	100	...
Hinde & Dauch, Com.	125	None Off.
Hinde & Dauch, 6% Pfd.	102	None Off.
Holyoke Card & Paper	160	None Off.
Marathon Paper Mills, Com.	140	...
Mengel Co., Pfd.	102	104
Midwest Box Co., 8% Pfd.	98	102
Midwest Box Co., 6% Pfd.	95	99
Louis De Jonge Co., 7% Pfd.	94	97
Oxford Papers, Com.	195	...
Oxford Paper Co., Pfd.	108	111
Penobscot Chemical Fibre, Com.	80	...
Richardson Co., Com.	170	...
Sabin Robbins Paper Co., 8% Pfd.	105	110
St. Croix Paper	155	...
St. Regis Paper Co., 7% Cum. Pfd.	105	108
Westfield River Paper Co., 1st Pfd.	Wanted	None Off
West Virginia Pulp and Paper Company	55	57
West Virginia Pulp and Paper, Pfd.	100	101
Whitaker Paper, 7% Cum. Pfd.	105	None Off.

Canadian Paper Exports Increase

The report issued by the Canadian Pulp and Paper Association shows that exports of pulp and paper from Canada in January were valued at $16,136,198 which was an increase of $2,348,156 over the total for January 1928.

Exports of wood-pulp for the month were valued at $3,645,154 and exports of paper at $12,491,044 as compared with $3,071,447 and $10,716,595 respectively in January, 1928.

Quantities and values for the various grades of pulp and paper exported in January were as under:

	January, 1929		January, 1928	
PULP:	Tons	$	Tons	$
Mechanical	16,771	420,062	10,777	275,880
Sulphite bleached	23,328	1,773,913	15,658	1,202,861
Sulphite unbleached	14,590	732,446	17,400	887,981
Sulphate	11,306	675,669	11,333	674,458
Screenings	2,187	43,064	1,481	30,261
	68,182	3,645,154	56,649	3,071,447
PAPER:				
News print	195,047	11,973,615	157,466	10,240,670
Wrapping	1,258	132,838	1,361	152,751
Book (cwts.)	5,517	49,147	4,390	34,631
Writing (cwts.)	21	740	1,013	10,260
All other	.....	334,704	.....	278,273
		12,491,044		10,716,595

Pulpwood exports in January were 70,536 cords valued at $649,837 as compared with 113,527 cords valued at $1,057,959 exported in January, 1929.

The bulk of the exports of pulp and paper in January went to the United States, smaller quantities going to the United Kingdom and other countries as shown:

To:	Pulp	Paper	Total
United States	$3,045,999	$10,913,432	$13,959,431
United Kingdom	98,151	739,896	838,047
Other countries	501,004	837,716	1,338,720
	3,645,154	12,491,044	16,136,198

Stuebing Cowan Co. Expands

The Stuebing Cowan Company, builders of lift and industrial trucks and skids, with general offices in Cincinnati, Ohio, and plants in Cincinnati and Holyoke, Mass., have recently enlarged their Holyoke plant. Due to the demand for their product and especially in New England and the East, they found it necessary to triple their capacity. Considerable new equipment was added. They report 1928 as the largest year they have ever had but so far this year all records have been smashed. It seems that "shipping on skids" is becoming more universal—one reason for their marked increase.

Trumbull Vanderpoel Purchased by Cutler-Hammer

Cutler-Hammer, Inc., Milwaukee, Wis., announce that they have acquired the business of the Trumbull Vanderpoel Electric Manufacturing Company, of Bantam, Conn., which will be operated as a subsidiary under its present name.

This purchase will add a complete line of meter service and safety switches to the present Cutler-Hammer line of motor control, wiring devices and allied electrical items.

Paper Index Number for January

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 13, 1929.—Paper production index number for January was 119 compared with 115 for January of last year and 120 for December taking 1923-1925 at 100 according to the Department of Commerce.

For "wire" boxes—permanent Bronze side rails with diagonally inserted sections of selected Vermont rock maple, with the grain of the wood UPRIGHT.

You Need These Ten Great Advantages of Emerson End-of-Grain Suction Box Covers

1. 3 to 10 times the wear
2. Less "smoothing up"
3. Longer wire life
4. 10% power saving.
5. Easy to get quickly
6. Eliminates streaking
7. Increases suction
8. Fewer "washups"
9. No grit or splinters
10. Easy to install

Try them. See for yourself what a wonderful improvement they are. Write for full information and prices.

THE EMERSON MANUFACTURING COMPANY **LAWRENCE, MASSACHUSETTS**

The Emerson End-of-Grain Suction Box Cover for "felt" boxes.

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GEORGE SHEVLIN AND
The TRIMBEY-SHEVLIN "Junior"

This "Junior" screens 40 tons G. W. using .065 plates using but 15 H.P. The TRIMBEY-SHEVLIN "Senior" handles 80 tons with 25 H.P.

TRIMBEY MACHINE WORKS
Glens Falls, N. Y.

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Large Production
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Prompt Deliveries
Purity 99½%

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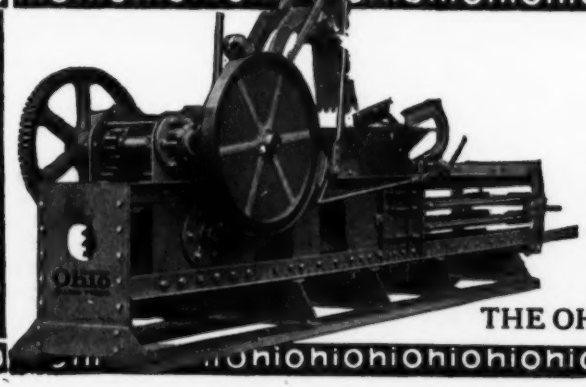
Mine Gulf, Matagorda County, Texas



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Ohio
BALING PRESS
Made in Three Sizes

There is no stopping, no lifting out of the plunger either for feeding in material, for tying up the bale, or removing it. All these things are necessary in the vertical press. They delay the operation, make more labor and cut down the output.

THE OHIO CULTIVATOR CO., Bellevue, Ohio

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, March 20, 1929.

Conditions in the local paper market are gradually improving. Demand for practically all the various standard grades of paper was quite active during the past week and the market exhibited a strong undertone. Reports from the sales forces of the leading paper organizations denote that the spring campaign is proving successful and a feeling of optimism prevails. Prices are generally steadier than for some time past.

The newsprint situation is clearing now that prices have been stabilized and production keyed to consumption. According to statistics prepared by the Newsprint Service Bureau, production in the United States and Canada is running at about 79 per cent of capacity. Spot offerings are about sufficient to take care of immediate requirements.

No radical changes have been reported in the paper board market and the price situation is still unsatisfactory. The fine paper market is in a sound position and book and bond papers are in steady request. Some improvement was noticed in the coarse paper market. Recently advanced kraft prices are being maintained. Wrapping paper is moving in good volume.

Mechanical Pulp

The ground wood market was moderately active during the past week. Production at present is rather limited both in this country and abroad. Swedish manufacturers have agreed to curtail their output for another year. Offerings of mechanical pulp are scarce and prices rule steady to firm.

Chemical Pulp

Demand for both imported and domestic chemical pulp is fairly persistent. Inquiries for future business are numerous and the immediate outlook is encouraging. Bleached sulphite maintains its strong position and offerings of this grade are decidedly limited. Prices are being maintained at recently quoted levels, without difficulty.

Old Rope and Bagging

The old rope market is displaying considerable strength. Demand is active, and, with supplies scarce, prices rule very firm. Foreign manila rope is now quoted at from $4.00 to $4.25, while domestic old manila rope is selling at from $4.50 to $4.75. The bagging market continues quiet. Roofing grades are moderately active but scrap and gunny bagging is moving slowly. Prices are unchanged.

Rags

Paper mill interest in the domestic rag market is improving. Collections are expanding now that the weather is becoming warmer. Cotton cuttings are moving freely. Prices are steady to firm. The foreign rag market is also becoming more active. The higher grades, in particular, are in a better position than for some time. Roofing rags are in excellent request. Prices are fairly steady, in most instances.

Waste Paper

Steadiness prevails in the paper stock market. The lower grades are still in heavy demand from the board mills. No. 1 mixed paper is firmer and is now being offered at from .50 to .55. While book stock is not quite so active, there have been no radical price changes. Old kraft paper is only moving slowly at present but quotations are unaltered.

Twine

Trading in the twine market is seasonal, and, due to the increased consumption of wrapping paper for Spring and Easter requirements, the outlook for the industry in the near future is very promising. Prices of the various grades are holding up well and there is little talk of concessions around.

Goes With Howard Aetna and Maxwell Mills

The Howard Paper Company and allied mills, the Aetna Paper Company of Dayton, Ohio, and the Maxwell Paper Company of Franklin, Ohio, have engaged H. S. Spooner of Cleveland, Ohio, to take charge of their sales promotion department.

Mr. Spooner comes to the Howard organization after twenty-two years of experience in the paper business, most of which was spent with the Cleveland Paper Company of Cleveland, Ohio, and

H. S. SPOONER

the Alling & Cory Company of Pittsburgh, Pa., and Akron, Ohio.

A great deal of his time will be spent in cooperation with the various agents and their salesmen promoting the sale and use of Howard products including the sulphite and rag content watermarked bonds and ledgers made at Urbana and Dayton, and the unwatermarked sulphite bonds and offset papers made at Franklin, Ohio.

Chatfield Paper Co. Qualifies in Indiana

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., March 11, 1929.—Officials of the Chatfield Paper Corporation, an Ohio corporation, have filed papers with the secretary of state in Indianapolis qualifying the company to do business in Indiana. The company deals in paper, cordage, bags, sacks and other similar lines of paper. There is a total of 803 shares of no par value capital stock represented in Indiana. John E. Tierney, Jr., of Indianapolis, has been named state agent for service of process.

Pulp Mill Knives for
Chippers
Barkers
Hogs
Shredders

Paper Mill Knives for
Washers
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Cut clean—hold their edge—wear uniformly—last longer

Try a set,—compare results with the knives you are now using. See for yourself why an increasing number of mills are standardizing on Bolton Quality Knives.

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Hercules FF Wood Rosin is a good sizing agent for practically all papers made from unbleached pulp. Its water-proofing qualities are unexcelled and it has other distinctive and valuable properties.

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A History of Paper Manufacturing in the United States

By LYMAN HORACE WEEKS

Author of "An Historical Digest of the Provincial Press," "Legal and Judicial History of New York," "Prominent Families of New York," "Book of Bruce," etc., etc.

A comprehensive story of the paper making industry in this country from its small beginnings in 1690. All the material facts gathered into one complete, compact narrative. Illustrated.

$3.00 net—*Order from the publishers*

LOCKWOOD TRADE JOURNAL CO.
10 East 39th St., New York City

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, March 13, 1929.

BLANC FIXE.—The blanc fixe market is in a sound position. Demand for both the pulp and the powder is seasonal. The pulp is still quoted at from $42.50 to $45.00 per ton, in bulk, while the powder is selling at from 3¼ cents to 4½ cents per pound, in barrels, at works.

BLEACHING POWDER.—Steadiness prevails in the bleaching powder market. Shipments against contract are moving in a normal manner. Prices are holding to schedule, in most instances. Bleaching powder is quoted at from $2.00 to $2.35 per 100 pounds, in large drums, at works.

CASEIN.—The casein market was irregular and prices declined slightly. Domestic casein is now quoted at from 16 cents to 16½ cents per pound, while standard ground imported is selling at 16 cents per pound and finely ground at 16½ per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Supplies of caustic soda are moving into consumption in excellent volume. Demand for this product is persistent. Solid caustic soda is quoted at from $2.90 to $2.95, while the flake and the ground are selling at from $3.30 to $3.35 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is practically unchanged. Shipments against contract are going forward regularly. Prices are steady. Imported china clay is quoted at from $15 to $25 per ton, ship side, while domestic paper making clay is selling at from $8 to $13 per ton, at mine.

CHLORINE.—Consumption of chlorine is being maintained in satisfactory volume. Prices are holding to previously quoted levels. Chlorine is quoted at 3 cents per pound, in tanks, or multi-unit cars, at works, on standard contracts. The spot quotation ranges from 3¼ cents to 3½ cents per pound.

ROSIN.—The rosin market is somewhat weaker. At the naval stores, the grades of gum rosin used in the paper mills are now quoted at from $8.25 to $9.25 per 280 pounds, ex dock, in barrels. Wood rosin is selling at from $7.00 to $7.80 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Demand for salt cake continues excellent. Shipments against contract are proceeding at a satisfactory pace. Prices remain unchanged. Salt cake is still quoted at from $16 to $18 per ton, while chrome salt cake is selling at from $14 to $15 per ton, in bulk, at works.

SODA ASH.—The undertone of the soda ash market is strong. Production is being maintained in sufficient volume to take care of current needs. Prices are unaltered. Contract quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bags, $1.32½, and in barrels, $1.55.

STARCH.—Most of the business transacted in the starch market was along routine lines. The contract movement is about normal for the season. Prices are unchanged. Special paper making starch is quoted at $3.82 per 100 pounds, in bags, and at $3.99 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Trading in the sulphate of alumina market was fairly active. Prices are generally holding to previously quoted levels. Commercial grades of sulphate of alumina are quoted at from $1.40 to $1.55, and iron free at from $1.95 to $2.05 per 100 pounds, in bags, at works.

SULPHUR.—The sulphur market was moderately busy during the past week. Prices rule steady. Sulphur is quoted at $18 per ton, in lots of 1,000 tons, or over, on yearly contracts, and at $20 per ton, for any smaller quantity over that period. On spot and nearby car loads, the quotation is $21 per ton.

TALC.—Conditions in the talc market were rather quiet. Contract shipments are moving in normal volume. Prices are holding to schedule and shading is infrequent. Domestic talc is quoted at from $16 to $18 per ton, at eastern mines, while imported talc is selling at from $18 to $20 per ton, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine sized	8.00	@11.00

(Delivered New York)

News—		
Rolls, contract	62.00	@ —
Rolls, spot	62.00	@ —
Sheets	67.00	@ —
Side Runs	47.00	@52.00
Book, Cased—		
S. & S. C.	6.00	@ 7.50
M. F.	5.75	@ 7.00
Coated and Enamel	7.50	@12.00
Lithograph	7.50	@12.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.35	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .80
Kraft	1.00	@ 1.10
Manila	.75	@ .80
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	4.30	@ 4.50
Southern	4.25	@ 4.50
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

Boards—per ton—		
News	32.00	@39.50
Straw	52.50	@55.00
Chip	30.00	@37.50
Binders' Boards	65.00	@67.50
Sgl. Mla. Ll. Chip	44.00	@47.50
Wood Pulp	80.00	@85.00
Container	52.50	@55.00
85 Test Jute Liner	47.50	@53.00

Mechanical Pulp

(Ex-Dock)

No. 1 Imported—		
Moist	28.00	@31.25
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	26.00	@29.00
Screenings	15.00	@20.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.75	@ 4.40
Easy Bleaching	2.85	@ 2.90
No. 1 strong unbleached	2.50	@ 2.80
Mitscherlich unbleached	2.60	@ 3.25
No. 2 strong unbleached	2.40	@ 2.50
No. 1 Kraft	2.50	@ 2.75
No. 2 Kraft	2.40	@ 2.50
Sulphate—		
Bleached	375	@ 3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.40	@ 4.75
Easy Bleaching Sulphite	2.60	@ 2.75
News Sulphite	2.40	@ 2.50
Mitscherlich	3.00	@ 3.25
Kraft (Domestic)	2.50	@ 3.30
Soda Bleached	3.15	@ 3.30
Sulphate Screenings—		
Coarse	.75	@ .95
Refined	1.50	@ 1.65

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	11.00	@11.50
New White, No. 2	8.00	@ 8.50
Silesias No. 1	7.25	@ 7.75
New Unbleached	10.50	@11.00
Washables	4.25	@ 4.75
Fancy	5.50	@ 6.00
Blue Overall	6.75	@ 7.25
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Mixed Khaki Cuttings	4.75	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.15	@ 5.75
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.50	@ 6.00
Miscellaneous	4.50	@ 5.00
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.50	@ 2.75
St. Soiled, White	2.00	@ 2.15
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.70	@ 1.80
No. 1	1.70	@ 1.80
No. 2	1.55	@ 1.65
No. 3	1.30	@ 1.40
No. 4	1.25	@ 1.35
No. 5A	.90	@ 1.05

Foreign Rags

New Rags

New Dark Cuttings	2.50	@ 3.00
New Mixed Cuttings	2.75	@ 3.25
New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.50	@ 8.00
Unbleached Cuttings	10.00	@11.00
New White Cuttings	10.50	@11.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50

Old Rags

No. 1 White Linens	7.25	@ 8.00
No. 2 White Linens	5.50	@ 6.25
No. 3 White Linens	4.50	@ 5.00
No. 4 White Linens	3.00	@ 3.50
No. 1 White Cotton	5.50	@ 6.50
No. 2 White Cotton	4.50	@ 5.50
No. 3 White Cotton	3.00	@ 4.00
No. 4 White Cotton	1.90	@ 2.15
Extra Light Prints	2.75	@ 3.25
Ord. Light Prints	2.25	@ 2.50
Med Light Prints	1.90	@ 2.10
Dutch Blue Cottons	2.15	@ 2.30
French Blue Linens	2.65	@ 2.75
German Blue Linens	2.35	@ 2.55
German Blue Cottons	2.10	@ 2.20
Checks and Blues	1.80	@ 1.90
Lindsay Garments	1.80	@ 1.85
Dark Cottons	1.60	@ 1.65
Old Shopperies	1.50	@ 1.55
New Shopperies	1.50	@ 1.60
French Blues	2.10	@ 2.25

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.60	@ 1.70
Domestic	1.70	@ 1.75
Wool Tares, light	1.60	@ 1.65
Wool Tares, Heavy	1.60	@ 1.70
Bright Bragging	1.60	@ 1.65
Small Mixed Rope	1.25	@ 1.40
Manila Rope—		
Foreign	4.00	@ 4.25
Domestic	4.50	@ 4.75
New Burlap Cut	2.75	@ 3.00
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, white, No. 1	3.25	@ 3.50
Hard, white, No. 2	2.40	@ 2.55
Soft, White, No. 1	2.50	@ 2.60
White envelope cuttings	3.25	@ 3.50
Flat Stock—		
Stitchless	1.60	@ 1.70
Overissue Mag.	1.60	@ 1.70
Solid Flat Book	1.50	@ 1.60
Crumpled No. 1	1.15	@ 1.25
Solid Book Ledger	2.00	@ 2.10
Ledger Stock	1.70	@ 1.80
New B. B. Chips	.65	@ .75
New Env. Cut	2.40	@ 2.60
Manilas—		
New Cuttings	1.60	@ 1.85
Extra No. 1 old	1.25	@ 1.35
Print	.75	@ .80
Container	.60	@ .65
Bogus Wrapper	.75	@ .85
Old Kraft Machine Compressed bales	1.75	@ 1.85
News—		
No. 1 White News	1.70	@ 1.75
Strictly Overissue	.85	@ .95
Strictly Folded	.65	@ .70
No. 1 Mixed Paper	.50	@ .55
Common Paper	.30	@ .35

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American made for American Trade

H. T. BRAND COATING CLAY

and

High Grade Filler Clay

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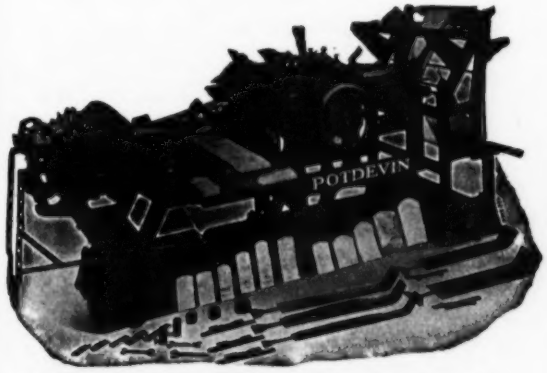
NEW YORK

NEW **POTDEVIN** PRINTING

SPECIALTY BAG MACHINERY



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Manufacturers of

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MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Cover and Music Paper, High Grade Coated Book, Index Bristol, Post Card, Kraft and Label Papers.

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200 Fifth Avenue New York — 732 Sherman Street Chicago

508 Market St., San Francisco, Cal.

122 East 7th St., Los Angeles, Cal.

Sixth and Chestnut Sts., Philadelphia, Pa.

Twines

F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.19	@	.21
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger	.16	@	.17
Fine Tube Yarn—			
5-ply and larger	.21	@	.25
4-ply	.25	@	.29
3-ply	.28	@	.32
Unfinished India—			
Basis	.13	@	.14
Paper Makers Twine Balls	.11	@	.12
Box Twine, 2-3 ply	.15	@	.17
Jute Rope	.17	@	.19
Amer. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.16	@	.18
No. 2 Basis	.14	@	.16
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Rope	.22	@	.24

CHICAGO

All Rag Bond	.35	@	.41
No. 1 Rag Bond	.25	@	.34
No. 2 Rag Bond	.14	@	.25
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
News—Roll, mill	.03½	@	.04¼
News—Sheets, mill	.03¾	@	.04¾
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.06¼	@	.06½
Southern Kraft	.03¾	@	.04
No. 2 Kraft	.04	@	.04¼
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue—			
24x36 Sheet	.07	@	.07¾
White Tissue—			
20x30 Sheet	.07¼	@	.07½
Boards, per ton— (Delivered Central Territory)			
Plain Chip	37.50	@	41.00
Solid News	47.50	@	—
Manila Lined Chip	55.00	@	—
Container Lined— (Delivered Central Territory)			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.20	@	2.25
White Env. Cuttings	2.40	@	2.50
No. 1 Soft Shavings	2.00	@	2.10
No. 1 Mixed	.90	@	1.00
No. 2 Mixed	.70	@	.75
Ledger & Writings	1.45	@	1.50
Solid Books	1.25	@	1.40
Blanks	1.40	@	1.50
Krafts	1.60	@	1.75
New Kraft Cuts	2.15	@	2.25
Manila Envelope Cuttings	1.65	@	1.75
Ex. No. 1 Manila	1.30	@	1.45
Print Manila	.80	@	.85
Folded News (over-issue)	.80	@	.85
Old Newspapers—			
No. 1	.70	@	.80
No. 2	.65	@	.70
Mixed Papers—			
No. 1	.65	@	.70
Roofing Stocks— (F.o .b Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.06	@	.40
Ledgers	.10	@	.40
Writings—			
Superfine	.13	@	.18
Extra fine	.20	@	.22
Fine	.18	@	.26½
Fine, No. 2	.15	@	.25
Fine, No. 3	.10	@	.20
Book, M. F.	.06	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.10	@	.16
Coated Lithograph	.07	@	.11
Label	.07	@	.11
News	.03½	@	.04
No. 1 Jute Manila	.08½	@	.09
Manila Sul., No. 1	.04½	@	.05½
Manila No. 2	.03¾	@	.04
No. 2 Kraft	.06	@	.06½
No. 1 Kraft	.06½	@	.07
Common Bogus	.03½	@	.04
Straw Board	52.50	@	75.00
News Board	38.00	@	42.00
Chip Board	35.00	@	40.00
Wood Pulp Board	85.00	@	95.00

(Carload Lots)

Binder Boards—			
No. 1, per ton	75.00		
No. 2, per ton	70.00		
Carload lots	68.00	@	70.00
Tarred Felts—			
Regular	53.00	@	55.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.85	@	1.95
Best Tarred, 2-ply (per roll)	1.44	@	1.54
Best Tarred, 3-ply	1.83	@	2.08

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.10½	@	.11
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.08½	@	.09
Black Silesia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable, No. 1	.04½	@	.05
Blue Overall	.07½	@	.08
Fancy			
Cottons—According to grades—			
Washable, No. 2	.03	@	—
New Blue	.03	@	.03¼
New Black Soft	.05	@	.05¾
New Light Seconds	.02½	@	.03
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05½	@	.05¾
No. 2 Mixed	.04½	@	.04¾
Corduroy	.03	@	.03½
New Canvas	.08½	@	.09
New Black Mixed	.03¾	@	.04½

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	3.50	@	4.00
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.20	@	3.25
No. 2 Hard White	2.75	@	3.00
No. 1 Soft White	2.50	@	2.60
No. 2 Soft White	1.90	@	2.00
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.85	@	1.90
Writing Paper	1.60	@	1.65
No. 1 Books, heavy	1.45	@	1.55
No. 2 Books, light	1.20	@	1.25
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	.95	@	1.00
Container Manila	.85	@	.90
Old Kraft	2.25	@	2.50
Common paper	.50	@	.55
No. 1 Mixed Paper	.65	@	.70
Straw Board, Chip	.65	@	.70
Binders Board, Chip	.65	@	.70
Overissue News	.85	@	.90
Old Newspaper	.65	@	.70

Domestic Rags (Old)

White, No. 1—			
Repacked	4.25	@	4.50
Miscellaneous	3.50	@	3.75
White, No. 2—			
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Roofing Stock—			
Foreign No. 1	1.65	@	1.75
Repacked	.02½	@	.02¾
No. 2	1.30	@	1.35
No. 3 (Roofing)	1.15	@	1.25
No. 4	1.00	@	1.15
No. 5A	.75	@	.85
B	.65	@	.75
C	.65	@	.75

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	36½	@	.65
Writings	.07	@	.20
Superfines	.11	@	.31
News	.03½	@	.04
Book, Super	.06	@	.09
Book, M. F.	.05¾	@	.08½
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.05½	@	.06½
No. 2 Kraft	.04¼	@	.05
Common Bogus	.02	@	.02¾
Delivered New England points			
Straw Boards, rolls .009			52.50
Straw Board in Sheets, basis 35s to 70s	54.50	@	55.00
Filled News Board	37.50	@	40.00
Chip Board	35.00	@	37.50
Single Manila Lined Chip	47.50	@	50.00
Single White, Patent Coated Newsboard Bender	67.50	@	80.00
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.50	@	2.60
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	2.35	@	2.45
No. 1 Books, Heavy	1.50	@	1.55
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	1.15	@	1.20
White Blank News	1.60	@	1.65
Old Kraft	1.85	@	1.90
Print Manila	.80	@	.90
No. 1 Mixed Paper	.55	@	.57½
Overissue News	.70	@	.85
Old Newspapers	.60	@	.65
Box Board, Chip	.55	@	.60

Bagging

(F. o. b. Boston)

Gunny No. 1—			
Foreign	1.70	@	1.75
Manila Rope—			
Foreign	4.00	@	4.25
Domestic	4.25	@	—
Mixed Strings	.90	@	1.00
Jute Wiil Strings	—	@	1.00
Scrap Burlaps	1.25	@	1.35
Scrap Sisal	1.60	@	1.80
Scrap Sisal for shredding	1.75	@	2.00
Wool Tares, heavy	—	@	1.30
New Burlap Cutting	1.90	@	2.00
Australian Wool Pouches	2.75	@	3.00

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.09½	@	.10
Silesias, No. 1	.06	@	.06¼
New Unbleached	.10	@	.10½
Fancy	.04	@	.04½
Washable	.04	@	.04¾
Cottons—According to grades			
Blue Overalls	.06¼	@	.06¾
New Black, soft	.04	@	.04¼
Khaki Cuttings	.04	@	.04¼
O. D. Khaki	.05	@	—
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	2.25	@	2.35
Thirds and Blues—			
Repacked	2.00	@	2.15
Miscellaneous	1.75	@	1.90
Roofing Stock—			
No. 1	1.65	@	1.75
No. 2	1.45	@	1.55
No. 3	1.05	@	1.10
No. 4	1.10	@	1.15

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.60	@	1.65
New No. 1 Shirt Cuttings	9.00	@	10.00
Dutch Blues	2.00	@	2.12½
Lace Curtains	5.10	@	5.50
New Checks & Blues	4.25	@	4.50
Old Fustians	1.90	@	—
Old Linsey Garments	1.85	@	1.90

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¼	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
News f. o. b. Mills—			
Rolls (carloads)	3.25	@	—
Sheets (carloads)	3.75	@	—
Sheets (2 tons or over)	4.00	@	—
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and Litho	13.25	@	—
No. 2 Coated and Litho	12.25	@	—
No. 3 Coated and Litho	11.50	@	—
Coated tinted	14.50	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.80	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.00	@	—

Pulp

(F. o. b. Mill)

Ground Wood	30.00	@	31.00
Sulphite easy bleaching	62.00	@	—
Sulphite news grade	62.00	@	—
Sulphite, bleached	75.00	@	—
Sulphate	60.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	2.85	@	—
White Blk. News	1.60	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.40	@	—
Light and Crumpled Book Stock	1.25	@	—
Ledgers and Writings	1.50	@	—
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.80	@	—
No. 1 Mixed Paper	.70	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.11½	@	—
Fancy Shirt Cuttings	.05¼	@	—

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PAPER TRADE JOURNAL
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